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Shelton, Horace H.

"Agricultural Mexico"

[Mexico]

1909

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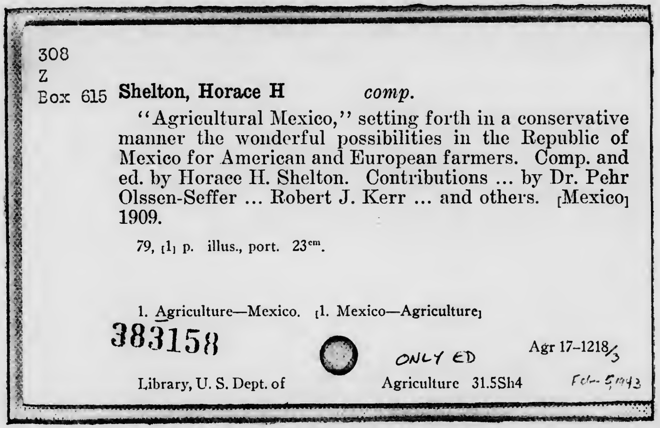

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AGRICULTURAL MEXICO

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"AGRICULTURAL MEXICO"

Setting Forth in a Conservative Manner the Wonderful Possibilities in the Republic of Mexico
for American and European Farmers

Compiled and Edited by

HORACE H. SHELTON

Contributions by such Noted Authorities on Mexico as Dr. Pehr Olssen-Seffer, Agricultural Expert of the Mexican Government; Judge Robert J. Kerr, Foremost Authority on Mexican Law; United States Consuls Donaldson, Canada and Miller; Russell Hastings Millward and others

ENDORSED BY

HON. OLEGARIO MOLINA
Minister of Fomento, Republic of Mexico

PRICE 25 CENTS

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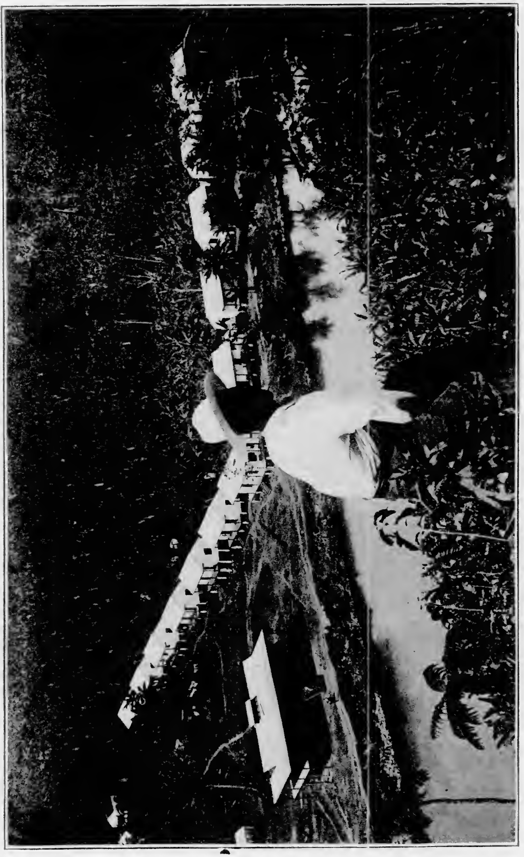
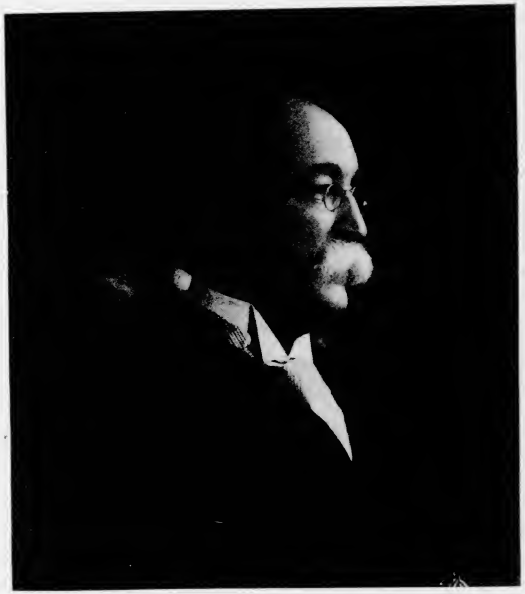


BANANAS AS THEY ARE CULTIVATED ON LARGE PLANTATIONS.

DEVELOPER OF MODERN MEXICO



HON. OLEGARIO MOLINA

MINISTER FOMENTO, MEXICO CITY

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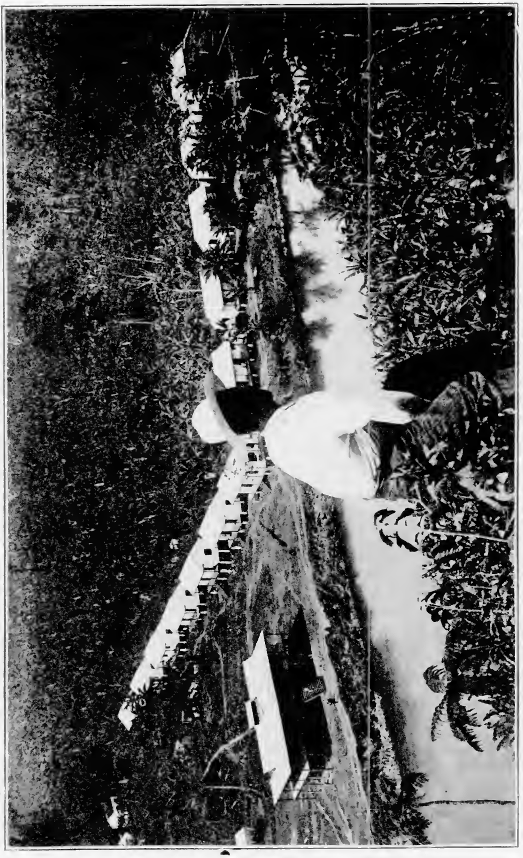

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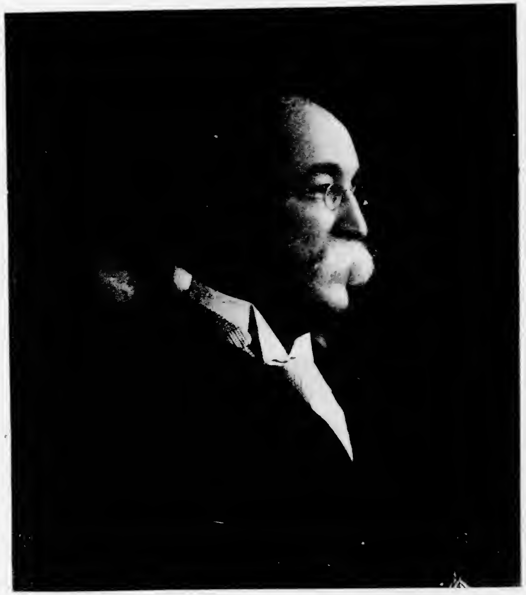

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CHAPTER I.

MEXICO ATTRACTIVE TO CAPITAL

Over Two Billion Dollars of Foreign Capital Invested Shows that Government is considered Stable, the Laws Just and the Opportunities Unequaled.

THE FACT that over two billions of dollars of foreign capital is invested in Mexico, of which amount $800,000,000 is from the United States, where the people have the best opportunity of knowing Mexico intimately, shows more conclusively than anything else that the government of Mexico is considered as stable as that of any country in the world; that investors, who make it their business to investigate intelligently, carefully and without prejudice, consider the laws of the country safe, equitable, honestly administered and giving ample protection to every dollar invested; that corporations, companies and men with money, who have the world as a field, are attracted to Mexico because it today offers to them the best opportunities for conservative, lucrative and dividend-returning investments.

While Mexico is attracting capital from the financial centers of the entire world, it seems especially attractive to Americans and the causes which have contributed to the financial and industrial invasion of Mexico are not hard to find.

In the first place the geographical position which that country occupies places it within direct reach of the overlapping American prosperity. It is connected with the United States with lines of railway which make it possible to travel from the chief cities of one country to those of the other without a change of cars. Second in importance to its advantageous location is the stable government with which it has been blessed during the many years that it has been under the rule of President Porfirio Diaz and the able officials whom he has kept around him. Perhaps, confidence in a country's government is really more important when it comes to the development of its native resources, than the advantages which the domain may occupy as to situation. No matter how great the natural resources of a country may be, capital would be timid about exploiting them unless the guaranty of a capable and honest administration of the nation's public affairs was assured the investor.

WONDERS ARE BEING WROUGHT.

The wonders that are being wrought in Mexico through the instrumentality of the investment of American and other foreign capital are little short of marvelous. This work of industrial and commercial transformation is not confined to any particular locality or state, but extends through the whole length and breadth of the land of the

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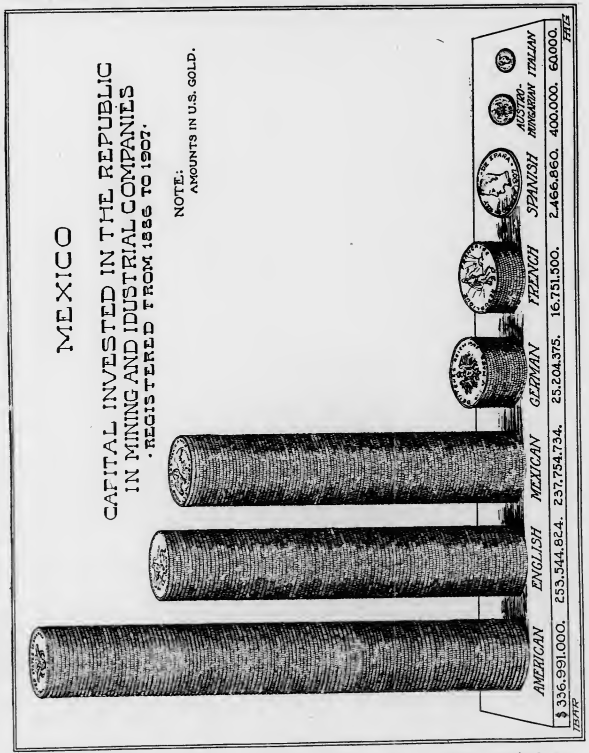
Aztecs. The influences of this peaceful invasion are to be seen in some States more than in others, but there is hardly a locality in Mexico, no matter how remote, that has not felt to a more or less extent the awakening influence of the mighty American dollar.



In many big enterprises American, British and German capital are working side by side, and Mexican capital is freely intermingled with American money in the operation of mines, manufacturing plants, railroads, and various other kinds of projects which are doing so much towards the development and upbuilding of the country. The liberal policy of encouraging the investment of foreign capital in Mexico which President Diaz inaugurated with the beginning of his administration of public affairs was somewhat slow to be taken advantage of by those large financial interests which were in a position to embrace the opportunity offered them. A demonstration of the stability of the Diaz regime of public affairs of Mexico had first to be given. When it became evident with the passing years that that country had entered upon an era of permanent peace foreign investors began to give heed to the possibilities that were offered them in the land which had so long been kept down by the storms of revolution and political dissensions that were constantly arising. It took only a cursory investigation to show that the country was teeming with undeveloped wealth; that its vast mineral riches had been barely touched; that its agricultural possibilities were almost beyond the wildest dreams of conjecture; that it possessed an abundance of various kinds of raw material which only awaited the advent of manufacturing plants to supply the people with practically all of the needs and many of the luxuries of life; that its Pacific and Atlantic coast lines were dotted with a number of natural harbors which could easily be converted into great marts of import and export traffic; that it possessed a variety of climates ranging from the heat of the tropics to the cool, invigorating temperature of the temperate zone. All these things and many more are the factors that have turned the tide of money and immigration toward Mexico.

BEST POSSIBLE TRANSPORTATION FACILITIES.

The fact that railroads now penetrate every section of Mexico giving the best possible transportation facilities to the country, has been a great stimulus to industrial development of every kind. The building of these railway lines has made it possible to open the mines, establish smelters and factories, cultivate the rich soil and to open up and carry on successfully various other industrial and commercial pursuits that add to a country's growth and prosperity. Localities that were practically unknown to the outside world on account of their remoteness from the ordinary routes of travel, have been brought into close communion with the more populous centers of Mexico and the United States by the building of railroads and in consequence thereof many of these places are being made to yield their full share of riches contained in their heretofore unexploited resources.

Comparatively few people fully realize and have a true appreciation of the vast native resources of Mexico. It is a domain that is destined in the future to become the greatest producer of the precious minerals of any country in the world. Its mineral storehouse has barely been touched, notwithstanding the fact that scratching around on the surface in spots has been in progress for two or three centuries and untold millions of dollars of wealth in gold, silver and copper have been extracted. There is scarcely a State in Mexico in which mining is not carried on more or less extensively. In the localities where the mines are advantageously situated as to railroad transportation facilities and other modern adjuncts to successful and profitable mining the mineral development has made giant strides during the last few years.

LARGE FIELD OF PARA GRASS. BEST OF CATTLE FEED.

CHAPTER II.

DEVELOPMENT IS ENCOURAGED

Liberal Concessions to Open up and Utilize Mexico's Raw Material One of the Policies of President Diaz and His Administration of Public Affairs.

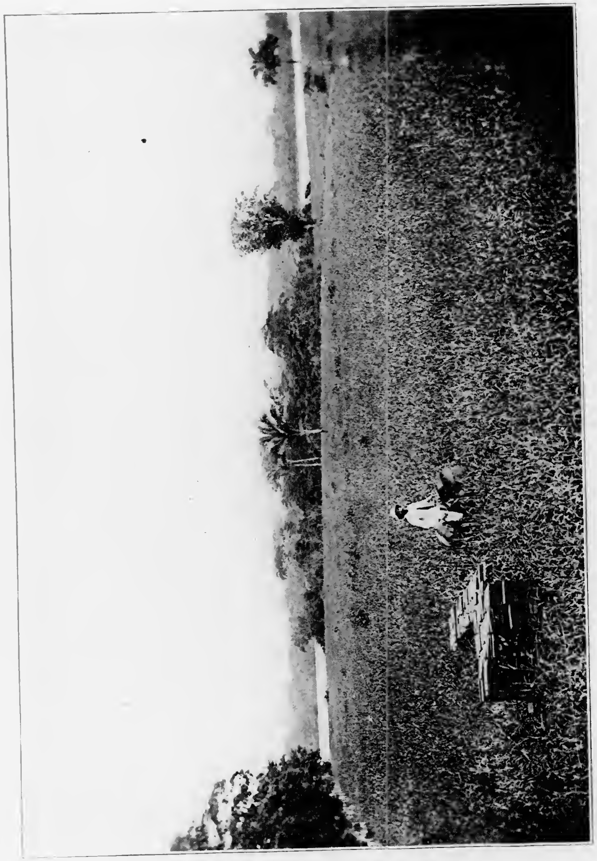
IT HAS BEEN the policy of President Diaz and his administration of public affairs to encourage to the fullest possible extent the utilization of the country's raw material. With this end in view liberal concessions have been granted for the establishment of manufacturing enterprises of various kinds. There has been a big growth in this branch of industry during the last fifteen or twenty years. This is particularly true of some of the towns and cities situated in the northern part of the republic, such as Monterey, which is known as the "Pittsburg of Mexico"; Chihuahua, Torreon and numerous smaller places which have became industrial centers of considerable importance. There are large sums of American capital invested in these manufacturing plants. Many articles of necessity which were formerly imported in large quantities are now manufactured at home.

SUGAR IMPORTANT INDUSTRY.

The manufacture of sugar is an important industry in Mexico which is rapidly passing into the control of Americans. In former years the Spaniards were known as the chief operators in sugar manufacturing in the Republic. Several years ago large sums of American capital began to be invested in sugar cane plantations in the semi-tropical and tropical parts of the country. With the successful growing of sugar cane came as a natural sequence the building of sugar mills and sugar refineries. Several million dollars of American capital are invested in these enterprises, and more is going into them constantly. The possibilities of Mexico as a sugar producing country are almost beyond comprehension. The richness of the soil, the climate and the natural conditions in other respects that prevail in a stretch of territory extending down both the Atlantic and Pacific coasts all the way to the Guatemala line from Matamoros on the east and Guaymas on the west are conducive, it is claimed, to the complete success of this industry.

There is hardly a branch of manufacturing now carried on in Mexico in which American capital is not invested. Perhaps the only exception is the cotton mills, in which there has as yet been placed but little, if any, American money. The larger flour mills are in the hands of Americans. The breweries, of which there are several, are in control of Germans and Mexicans, but there is said to be considerable American money invested in these enterprises.

The influx of American farmers to Mexico is another significant phase of the peaceful invasion that is being made of that country and which



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The influx of American farmers to Mexico is another significant phase of the peaceful invasion that is being made of that country and which means so much for its future upbuilding. The first-class coaches of the trains leading from the border are crowded daily with these investors who have resolved to pioneer their way to a comfortable competence in a country that is known to be teeming with natural resources of great richness. During the last few years many colonies of American farmers have been established in various localities. It is admitted that some of these new settlers may have made a serious mistake, but if so it is due chiefly to lack of proper investigation and the wrong selection of locality for their new home. Aside from the wealth that these newcomers may bring into the country and produce after they get there they are serving the good purpose also of leavening the loaf of ancient methods of farming and existing prejudices against things modern that among the native inhabitants in some parts of the country have prevailed from time immemorial. These new tillers of the soil bode much good for the growth and prosperity of Mexico. Their advent is causing a breaking up of vast tracts of land which have lain for centuries in an uncultivated state.

The great drawback to Mexico in the past has been that its land was owned by but few people; that these estates were so large that only a very small part of them could be cultivated. A repetition of what took place in Texas when the dividing up of the big ranches into small farming tracts was begun a few years ago has now started in Mexico. It means the dawning of a new and brighter era for that republic.

While the industrial advancement of Mexico has been going on during the wise administration of President Diaz and his co-laborers, the civic progress of the towns and cities has been equally as great and wonderful. And it is well to state in this connection that American capital has found a profitable source of investment in the manifold municipal improvements that have been made. In some of the cities American and British investors own the public utility plants and systems. In Monterey, the waterworks system, the electric light and power plant and the street railway system are owned by a syndicate of Canadians. This is also true of the City of Mexico, with the exception that American and English capital is interested with that of the Canadians. The electric street railway system of Vera Cruz is owned by S. Pearson & Son (Ltd.). The extensive electric street railway system and the electric light and power plant at Guadalajara and the electric street railway system of Chihuahua are owned by Mexicans. In Torreon the electric street railway system, including the interurban line which runs between Torreon and Lerdo via Gomez Palacio, is owned by Mexicans. A syndicate of wealthy Chinamen are building a competitive electric railway in that city. In Aguascalientes the electric street railway system is owned by Americans. American money is also invested in public utilities of this character in other towns and cities of the country.

The exploitation of the fiber plants of Mexico, such as the henequen and zapupe, is also being extensively carried on by Americans in the State of Tamaulipas. It promises to develop into a large and paying industry. There are many other smaller lines of business endeavor in Mexico in which Americans are playing important parts. They are prominent in commercial enterprises in the larger cities of the country. American

stores which were almost unheard of twenty years ago are now common in that republic.

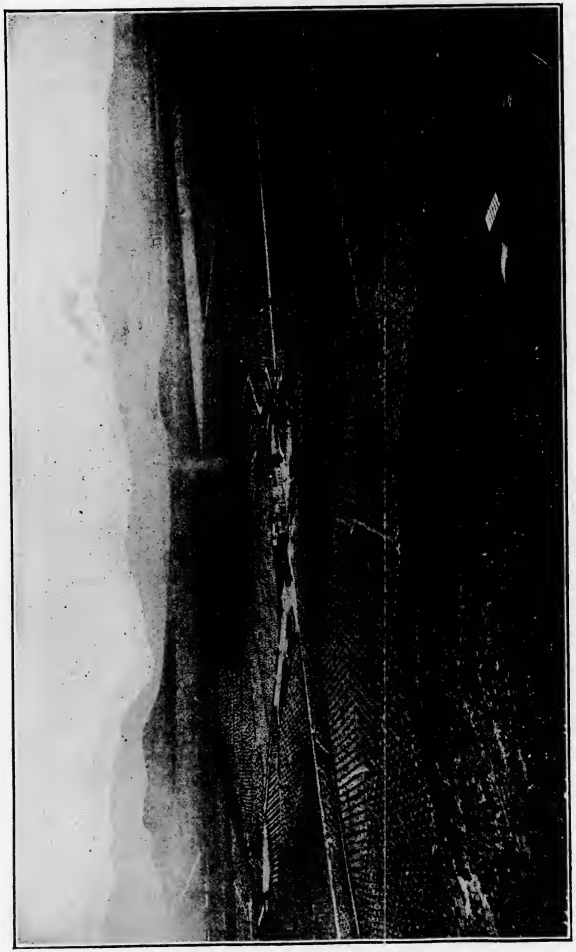
In addition to the actual investments of American money that have been placed in various lines of industry and business in Mexico it has proved a profitable field for contractors from the United States. Many of the larger buildings and public works have been constructed under the direction of these men. In this connection it may be interesting to state that a marked change in the style and architecture of the larger business buildings of Mexico has taken place during the last few years. In the larger cities of the country modern steel structures have taken the place of the ancient adobe type of buildings. There are already many of this new class of buildings in the City of Mexico.

GOVERNMENT HAS MADE THE REPUBLIC HEALTHY.

Mexico has set an example for other tropical and semi-tropical countries in dealing with the problem of sanitation and disease. The superior board of health of the republic under the able direction of Dr. Eduardo Liceaga has been ever alert to apply the most modern scientific methods in stamping out yellow fever and other diseases which in former years were wont to cause heavy losses of life and inflict serious harm to business interests of the more southern parts of the country. Through federal aid the ports of Vera Cruz, Tampico, Coatzacoalcos, Salina Cruz and other coast places have been equipped with systems of sanitation which have resulted in the almost complete eradication of the mosquito pest and a corresponding improvement of the health conditions. Yellow fever epidemics in Southern Mexico are a thing of the past. Modern systems of sewers and drainage have also been constructed in many of the interior towns and cities.

That the development and material advancement of Mexico is upon a solid and secure basis there can be no doubt. There may be brief periods of depression, due to transitory causes, just as are occasionally experienced in the United States, but with each passing year the momentum which is carrying that country forward toward the goal that will place it in high rank among the wealthy and enlightened nations of the world is increasing. The brawn and money of Americans and other foreigners are important factors in the results that are being accomplished in the republic that lies just to the south of the Rio Grande, but back of their efforts are President Diaz and his official co-laborers, who are the real foundation stones of the giant structure that is being builded out of the natural resources of the land.

The policy of encouraging the investment of American and other foreign capital in Mexican enterprises is not confined to the national administration of public affairs, but is followed by the governors of the respective states. The laws of the country afford every possible protection to these investments. It should be stated that in the granting of concessions and in welcoming the legitimate investment of capital no special favors are shown Americans by the authorities of the federal or state governments. All foreign investments are placed upon the same footing.



MAGUEY PLANTATIONS IN VALLEY OF MEXICO.

CHAPTER III.

FINANCIAL AND ECONOMIC CONDITIONS

THE REPORT submitted annually by the Finance Minister of Mexico, Licenciado Jose Yves Limantour, embracing the budget statement for the fiscal year and resume of financial conditions in the year previous, was sent to the Federal Congress on December 14, 1908, and covers the fiscal periods 1908 and 1909-10.

In the estimate of the financial resources of the nation, careful consideration is given to the economic conditions on which such estimate is based, so that the paper adequately details the status of agricultural, mineral, and commercial industries in the Republic.

In fixing the anticipated revenue for the fiscal year 1909-10 at $97,261,000 silver and disbursements at $96,935,402.11, indicating a surplus of $325,597.89, Minister Limantour gives the following valuations to native products, the movement of which is reflected in the volume of revenue collections.

According to official returns, the annual value of cereal crops, fruits, and other produce of the soil, and of cattle marketed, is slightly in excess of $400,000,000, though this sum is stated to be far below the true valuation.

Based upon exportation figures, which constitute the only available index to production values, mineral production figures for $166,143,000, as recorded in 1907-8.

The chief items on the list of agricultural products, representing a fair average crop, are reported as follows:

(Reproduced from India Rubber World.)

FOUR HUNDRED TONS OF GUAYULE RUBBER.

These bales vary in weight from 70 to 140 pounds. During the calendar year 1907 guayule rubber exports from Mexico reached a total of 11,900,000 pounds, and for the first six months of 1908 nearly 7,000,000 pounds.

Corn	hectoliters..	32,000,000	$100,000,000
Cotton	tons..	150,000	34,000,000
Henequen	do....	110,000	32,000,000
Wheat	do....	300,000	26,000,000
Sugar and molasses		....	26,000,000
Spirits		....	20,000,000
Coffee	kilos..	40,000,000	16,000,000
Beans	hectoliters..	2,000,000	12,000,000
Woods		....	10,000,000

Mineral production shows the following distribution: Gold, $38,096,000; Silver, $85,447,000; Copper, $24,800,000; Lead, $5,400,000; Zinc, $900,000; Other metals, $2,500,000; Coal, $7,000,000; Mineral Oil, $2,000,000.

The annual increase in the output of gold is a matter of great satisfaction, the present figures being attained in comparison with a valuation of $14,000,000, ten years ago.

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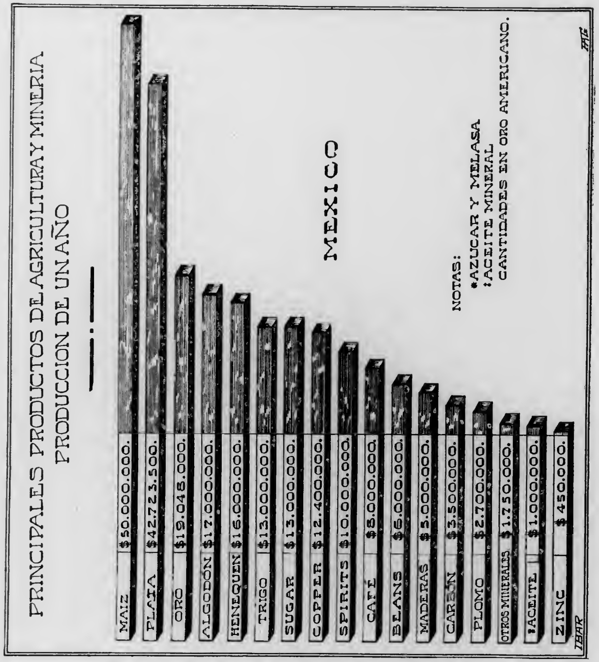
The annual increase in the output of gold is a matter of great satisfaction, the present figures being attained in comparison with a valuation of $14,000,000, ten years ago.

Notwithstanding the low price of silver since the middle of 1907, the operation of silver mines showed no decline during the latest fiscal year, but an increase was made both in the quantity and value of the output, though the average price per kilogram fell from $44 to less than $40.



CAPITAL INVESTED IN THE REPUBLIC.

A pamphlet recently issued by the Department of Statistics of the Mexican Government, covering the mining and industrial companies registered in Mexico from 1886 to 1907, inclusive, shows that the total domestic and foreign capital invested in these enterprises aggregated $1,908,418,697 Mexican currency, distributed as follows: Mexican capital, $475,509,468 silver; American, $336,991,000 gold; English, £52,169,717; German, 100,817,500 marks; French, 83,757,500 francs; Austro-Hungarian, 1,000,000 florins; Spanish, 12,334,300 pesetas, and Italian, 200,000 liras. From 1892 to 1907 the distribution by countries of capital in vested was as follows: Mexican, $114,307,250 silver; American, $17,257,800 gold; English, £677,400, and German, 1,200,000 marks.

MINERAL EXPORTS IN 1907-8.

The value of mineral exports from Mexico for the fiscal year 1907-8 was, according to the "Mexican Mining Journal," 158,430,625 pesos ($79,215,000), compared with 160,246,004 pesos ($80,123,000) for the fiscal year 1906-7. The following are the values, in Mexican silver, of the different mineral products exported during the fiscal year 1907-8: Gold, $31,921,019; silver, $93,034,750; antimony, $1,691,187; copper, $24,834,068; marble in bulk, $36,063; plumbago, $64,376; lead, $5,344,561; zinc, $888,484, and other mineral substances $616,115.

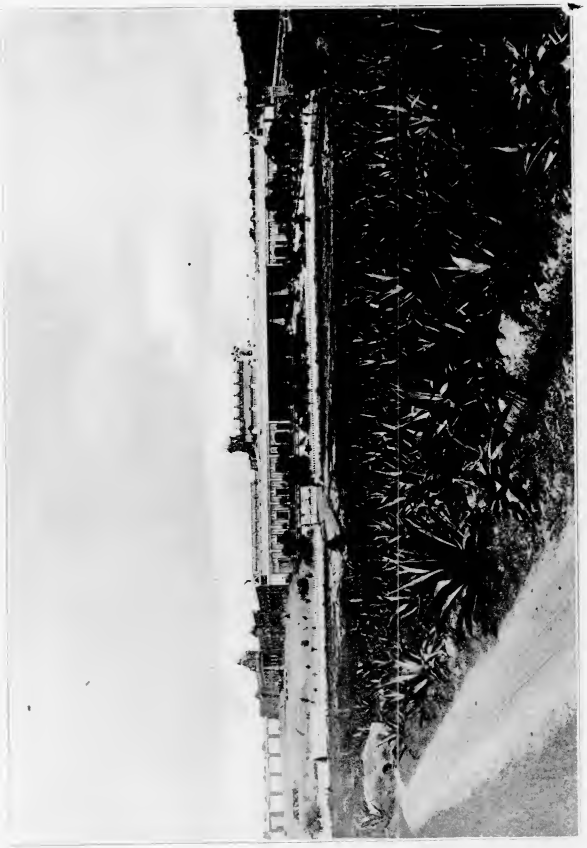
UNITED STATES OF MEXICO.

The United Mexican States (Estados Unidos Mexicanos) form the third largest of the American Republics as regards population and fourth largest as regards territory, having an area of 767,000 square miles and a population of 13,607,260, or 17.7 per square mile. Situated between the United States of America, the Gulf of Mexico and the Caribbean Sea, British Honduras, the Republic of Guatemala, and the Pacific Ocean, Mexico extends from latitude 14 deg. 30 min. 42 sec. to 32 deg. 42 min. north and from longitude 86 deg. 46 min. 8 sec. to 117 deg. 7 min. 31 sec. west of Greenwich.

Two mountain chains traverse the entire territory, forming between them a number of valleys and mesas or plateaux of various altitudes. That of Anahuac, on which is situated the capital of the Republic, is the largest and most important.

The varying altitudes as well as its situation, partly in the tropical and partly in the Temperate Zone, give to Mexico a diversity of climate and products. Its mineral wealth in silver and gold, copper, and lead is proverbial. The extensive forests, both of the lowlands, the tierras calientes, and of the mountain country are among the most valuable assets of the country. These contain in abundance woods suitable for building, for cabinet making, dyewoods, and medicinal plants. The rubber-producing castilloa is also found in considerable quantity in the low coast lands. Chicle, used so extensively in the manufacture of chewing gum, is a Mexican product.

In addition to its mineral exports, henequen, coffee, tobacco, cacao, vanilla, and sugar are exported in large quantities. Cotton, which is largely grown, is consumed in the domestic mills which, in addition import cotton from the United States.



HOME OF RICH HACIENDADO.

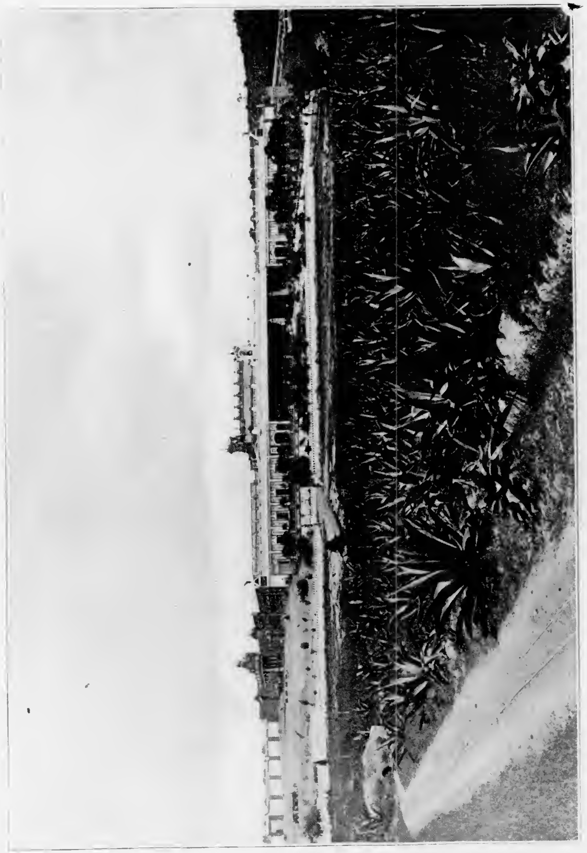
CHAPTER IV.

OPPORTUNITIES FOR THE HOMESEEKER

By **T. P. Keator.**

THIS chapter is intended to answer an unceasing tide of inquiries after accurate and complete information, concerning the "Land of Eternal Sunshine," where the rose and the violet, the carnation and the pansy and innumerable exotic plants grow and blossom uncultivated throughout the year; where owing to the great variety of soils and differences in altitude, tropical and temperate vegetation grow profusely almost side by side; of the undiscovered virgin forests of rarest woods and the untold natural resources of "Old Mexico." The growth of American interests in Mexico is tremendous. This country on our border, separated only by a narrow river, with an area of 767,000 square miles, three times that of Texas and thirteen times that of Illinois, with a population of 15,000,000, manufacturing little for itself, connected with the United States by two great trunk lines of railroad, with another building, the Kansas City and Orient, and on the threshold of development, is bound to be a market for American goods and a field for American activities. The Mexican still plows with a stick. He asks only his black beans and the corn out of which he makes his tortillas

CORN GROWN WITHOUT IRRIGATION.



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(corncakes), of the soil. The agricultural possibilities of a land whose mountain systems change the climate every few longitudinal miles, which has regions without rain and regions where it pours, which grows rubber and wheat a hundred miles apart, await the farmer.

Each succeeding year emphasizes the value and importance of the rich, fertile, undeveloped lands of Mexico. It has been successfully demonstrated in many choice localities where farming is being conducted even in a crude, limited manner that the soil and climate are adapted to the producton of an enormous yield of all classes of products and under conditions most favorable. It is difficult to appreciate the fact that the great agricultural possibilities and resources of the country have been ignored this long, even considering the extraordinary attractions of other resources. Now, the people from all countries are looking to Mexico for cheap lands, and justly so. The results achieved through development of the vast areas of fertile valley and tropical lands of Mexico within the next five years must and will be marvelous. The more thorough the investigation, study and travel one makes into the agricultural districts the more enthusiastic and assured he becomes of the great opportunities awaiting him. True, not all land is suitable or even good, much less choice land. But the fact remains just the same that there is as fine agricultural land in Mexico as in any country. Hundreds of thousands of acres in valleys and on plains, covered with luxuriant grass, healthful forage, wild choice fruits galore and now and then a small farm yielding bountifully under the touch of native cultivation. These tracts are being rapidly sold and divided into smaller tracts. The high market prices prevailing at all times for every product; cheapness of native labor, together with the great essentials, rich soil, uniform climate, and ample sufficiency of water, as well as favorable health conditions, make these choice localities of extreme importance and the center of attraction at this time when the demand for lands in Mexico grows greater every day.

LARGE WHEAT FIELDS ARE COMMON.

A big land boom is coming to Mexico. Personal investigation justifies the statement to the homeseeker that he is going into a country where he may plow, plant and reap every month in the year. He may make his choice as regards crops. Two regular crops of corn are raised per year, and the yield of each crop will make from fifty to sixty-five bushels per acre with little or no cultivation. The Mexican's method of farming is to plant corn with a sharpened stick, giving it no cultivation whatever. The climate conditions are ideal for maturing the corn and the American method of cultivation would insure an enormous yield. Corn is the great staple food crop of the natives and always commands a good price. Para and privilegio grasses are species of fattening grass that do well in Mexico, and it is said that twenty acres of these tame grasses are sufficient for fattening thirty head of cattle twice a year. A superior quality and abundant yield of rice is planted at the beginning of the rainy season, and as the harvesting comes at the end of the rainy season, ample time is given after the crop is harvested to put in a crop of corn, or to take care of volunteer rice, and then put in a crop of beans or some other quick growing crop. It should be borne in mind that in this favored land the crops are continuous. It is simply a matter of sowing and harvesting the year around.

Tobacco is cultivated in Mexico with great profit. The quality is among the very finest in the world. Cotton has a great future in Mexico. From one to one and a half bales can be produced per acre, and the cotton has to be replanted only every four to seven years on Mexican land. There is an enormous saving of expense and labor as compared with cultivation of cotton in our Southern States. Rubber is one of the products of great importance. In all countries of the world the use of rubber has grown to immense proportions. Here the wild rubber trees flourish and are tapped in a crude way by natives, while immense plantations have recently been planted on the Isthmus by American and other foreign companies. Cacao, which is the chocolate of commerce, is a product of great value and is one of the leading products of tropical Mexico. Cocoanuts are an easy and profitable crop. A cocoanut grove once established needs no attention except to gather and prepare the nuts for market. There is a fortune in raising cocoanuts in Mexico. Vanilla is a native of Mexico. As a side crop it is very profitable as the cost of producing it is small. Mexico is the natural home of oranges and lemons. These fruits are found growing wild along the roadside, developing to fine fruit. Mexican oranges are juicier, sweeter and of a much better flavor, and are marketed two months earlier than the Florida or California oranges. This is especially true of the region about Tampico. Oranges shipped from there command the highest prices. Chicago alone last year took 150 cars of Mexican sweet oranges from Rio Verde and called for more, but could not get them.

Bananas are one of the most profitable of the semi-tropical fruits. They bear fruit one year after planting and each plant bears a bunch. After the young plants are placed in the ground they need no further (corncakes), of the soil. The agricultural possibilities of a land whose mountain systems change the climate every few longitudinal miles, which has regions without rain and regions where it pours, which grows rubber and wheat a hundred miles apart, await the farmer.

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It is a well known fact that Mexico produces one of the best grades of coffee supplied to the markets of the world. Coffee will grow in almost any part of South Mexico. It needs rich, well drained loam and the rolling lands are much better than the more level lands. Coffee plants need shade to secure the best results, and planters are using banana and rubber plants to shade the coffee, thus securing two excellent paying crops from the same ground. The trees, when four or five feet high, begin to bear; a small crop is generally harvested the third year, three to four hundred pounds per acre the fourth year, increasing to eight hundred pounds the sixth year. The trees continue to produce fifteen to twenty years. The growing of coffee is extremely profitable.

The grazing lands of Mexico are unexcelled anywhere, are well watered and covered throughout the year with rich grasses, which, together with the mild and even climate, make the raising of cattle a very profitable industry.

CATTLE THRIVE SPEEDILY.

That Mexico is a splendid place to raise cattle for milk and also for the butcher is so well known that it seems superfluous to make mention of the possibilities of the country. Yet so little is the country exploited as a cattle growing country that it is necessary to call attention again to that fact. The climate of this country is unsurpassed for the growth of cattle. The highlands produce such foods as are adequate for their needs during the summer months, when the rains are scarce in the lowlands; and likewise in the winter, after the rains in the fall, there is ample food in the lowlands for cattle to subsist upon throughout the entire winter. It is no dream, but an accomplished fact that cattle can be grown to maturity in this country, without spending a cent for corn or hay for their maintenance. and the cattle may never shiver from the frosty blasts, such as are endured by the cattle of the United States. With these conditions prevailing, with water abundant in rivers, or within easy reach of the well drill, and with lands at a very reasonable price as compared with grazing lands in the United States, the cattle growing industry of this country must be a most profitable business. That the best grade of beef cattle grown in this country compares favorably with American grown cattle it may be pointed out that frequently Mexican growers come in competition with American breeders for the Cuban market, with the result that at almost every point of competition Mexico wins over the American. The cattle are well grown, the quality is good, and on account of the small expense of producing a well-matured animal the Mexican breeder is able to compete with the American in price and secure the business. There are millions of acres of land in this country now lying idle which can be bought in large bodies, at a reasonable price and which will produce better returns than a like amount of investment in lands and cattle in the United States.

Without question one of the most encouraging features of the development of commerce between Mexico and the United States is the increasing importation by Mexico of pure-bred cattle, horses and other

fat animals, showing that the farmers of Mexico are grading up their stock. Since the removal of the duty on cattle from the United States there have been shipments by carloads of both dairy and beef cattle. During the year ended June 30, 1906, there were imported into Mexico from the United States 18,641 head of cattle, which were valued at $666,962; 12,960 hogs, valued at $167,387; 2,588 horses, valued at $299,821, and 4,436 sheep, valued at $62,599. The values of the importation of animals during the year 1904-5 were: Cattle, $392,115; hogs, $72,720; horses, $239,078; sheep, $41,914. American farming machinery is also used to a greater extent than ever before in Mexico. The imports of agricultural implements from the United States during fiscal year 1905-06 were valued at $541,280, as compared with $364,093 in the previous fiscal year.

Owing to the heavy domestic demand in 1905-06, the imports of wheat, corn and breadstuffs from the United States showed a heavy increase over 1904-05. The imports of corn from the United States during the year ended June 30, 1906, aggregated 1,647,216 bushels, valued at $991,892, as compared with 502,710 bushels, valued at $300,586 in 1904-05. Less wheat flour was imported in 1905-06 than in 1904-05 or 1903-04, showing the enlargement of the milling industry. During the fiscal year 1905-06 the imports of flour from the United States amounted to 39,888 barrels, valued at $165,473, against 58,035 barrels, valued at $242,299, in the previous year.

VAST TIMBER SUPPLIES.

The vast supplies of timber in Mexico not only of choicest pine, but of oak, mahogany, cedar, ebony and all the valuable woods known to commerce, are enormous and must be treated in an article by itself. Suffice it to say, that enormous fortunes are to be made in buying tracts of Mexican timber lands at present prices.

By the expenditure of $100,000,000 Mexico is making a strong effort to regain, at least in part, the prestige in irrigation she enjoyed under the rule of the Aztecs. At the time of Montezuma Mexico had the greatest irrigation system in North America, but centuries of neglect caused the old canals and tunnels to become choked and useless. The lesson of other days has not been lost, however, for great irrigation works are to rise once more, and millions of acres of arid land are to become fertile. One example of irrigation in Mexico warranting attention is that near the city of Mexico, in the State of Hidalgo. In Sinaloa a modern irrigation plant furnishes water to 88,000 acres. In Puebla fifteen square miles have recently been brought under irrigation, at a cost of $100,000. In Guerrero irrigation works have been completed at a cost of $150,000. In many other States of Mexico vast schemes are under way for irrigating land. A concession and bonus of $3,000,000 has been granted to a corporation that will irrigate a vast tract of land opposite Brownsville, Texas, in the State of Tamaulipas. Six hundred thousand acres will be developed at once. For years the country of Mexico poured a great wealth into the lap of Spain and yet the country was merely being scratched with a crooked stick for a plow or being mined in the crudest of methods. At the present time immense tracts of fertile land are lying uncultivated, vast forests have never heard the sound of the saw or ax and mines of gold and silver are awaiting the advent of the skilled prospector.

With a diversity of altitude ranging from sea level to that of 8000 feet, Mexico's crops run the gamut of both the temperate and torrid zones. In fact, the productiveness of Mexican fields has been the ruin of more than one colony. The idea seems to have taken hold of the northern minds that, because the tropical land was rich, because nature provided so bountifully, that nature would naturally go a little farther and do all the work. For a man, however, who comes to Mexico with a determination to work—to expend the same amount of energy here as in another clime—reward is usually far beyond his most sanguine expectation.

The opportunities of making money and the climatic and health conditions are not the only things regarding Mexico that the masses of people in other countries are ignorant of. Few people realize what an immense area of territory Mexico contains. It is a great country; a republic containing twenty-seven States, three Territories and a Federal District, having an extreme length of 2000 miles and an extreme width of 800 miles, a total surface of one-fourth that of the United States.

It is unfortunate that Mexico could not be turned end for end so that the visitor would gain an intelligent idea of the wealth of the agricultural possibilities of the Republic when first entering the country. Leaving Mexico in the early morning on southbound trains, midday finds one approaching the tropics, where at any season of the year, especially in the dead of winter, will one be awe stricken with the wealth of tropical growth and luxuriance of vegetation. To enumerate the products of this tropical country would take entirely too much space. Suffice it to say that most of the grains, fruits and vegetables grown in the temperate zone are also grown in this section of Mexico. In addition to these there are scores of tropical fruits, grains and vegetables unknown to the people of the United States, the production of which is very profitable. In fact, one of the richest and most interesting portions of the Republic of Mexico is the lower country—the tropics. Endowed by nature with rich and fertile valleys, mountains covered with forests of mahogany, cedar and many other hard woods, with numerous clear, cold streams of sparkling water, leaping from rock to rock as it rushes along through mountain passes from its birthplace upon the mountain peaks to ride upon the bosom of the waters of the blue Pacific below. A climate as perfect as can be found in the whole country of the United States, a country of vast treasures of natural wealth awaiting the coming of the hand to guide the plow and the dynamo to turn the wheels of fortunes. Tomatoes grow prolifically throughout the Gulf Coast Plain of Mexico. The far-sighted gardener plants his tomatoes just so that they will come into bearing about the time that the frost kills vegetation in the United States. He then begins his shipments by rail or by steamship and has a steady market until tomatoes are again in bearing in the United States the following spring. Farmers in the tropics

tell us that it is a very easy matter to make tomato growing yield a profit of $250 an acre. Mexico is forging to the front as a sugar-producing country. Climatic conditions are very favorable to the same. Forty to sixty-five tons of sugar cane to the acre is no uncommon crop in tropical Mexico. It is only necessary to replant every 12 to 15 years. The growth of zapupe and henequen, the great fiber plants of Mexico, has made more millionaires than any other product of Mexico. It is easily cultivated and pays net from $140 to $200 per acre.

Mexico, where perpetual spring exists, is the paradise of the honey bee. There are blooming flowers twelve months in the year in tropical Mexico. Palm logs are cut in four or five-foot lengths, the pith is taken out, leaving a hollow log, which serves as the natural domicile of the honey bee. The writer has seen hundreds of bee stands round a single native hut. It is no unusual thing to see the logs filled with honey and the comb projecting from one to two feet at the end of the gums. We can conceive of no better investment than scientific bee raising in Mexico. Beeswax always commands fancy prices, while honey is yet cheap. It remains for some thrifty "Yankee" to develop the most wonderful bee industry on the American continent by going to Mexico and establishing himself where exists the most favorable environment possible.

HUNTING IN MEXICO.

There is no trouble in making a living from a small garden in Mexico, as you have a perpetual continuation of all kinds of vegetables and fruits; green corn, green peas, green beans, green peppers, green cucumbers, asparagus, onions ,beets, tomatoes, egg plant, celery, cauliflower, turnips, pumpkins, rhubarb, carrots, cabbage, sweet potatoes, radishes, lettuce and all kinds of melons and small friuts can be on your table every day of the year, as they grow as well one month as another. This practically spontaneous supply of vegetables and fruits for the table reduces the cost of living to a nonenity, as you can also grow mined in the crudest of methods. At the present time immense tracts of fertile land are lying uncultivated, vast forests have never heard the sound of the saw or ax and mines of gold and silver are awaiting the advent of the skilled prospector.

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American energy and initiative, as well as American capitalistic investment are flowing continuously over the borders into Mexico. Under the friendly relations that have grown up between this country and Mexico during the long extended administration of President Diaz, it has become almost as common for Americans looking for business opportunity to travel down into Mexico as it is to search for openings in Texas or Oklahoma. There is inviting opportunity in Mexico, not only for capitalistic enterprise, but for men with specially trained abilities.

CHAPTER V.

REAL ESTATE TITLES

By Robert J. Kerr.

It is stated on the authority of the several Consuls and Consular Agents of the United States whose jurisdiction extends over all Mexico, that there has been invested in various enterprises in the Republic, over one billion dollars of United States money. Probably more than half of this immense sum has been invested in real property and improvements thereto, the title to which is held by the American owners under the laws of Mexico. It thus becomes of extreme importance to the foreigner who already owns real estate and to the prospective buyer, to know what those laws are. It is the purpose of this article to give a general idea of the Mexican system of land tenure and transfer. Limitations of time and space prevent more than a general outline of the subject which will be treated not from the standpoint of the lawyer, but from that of the investor who wants to get a general notion of how he is going to be protected if he becomes a land owner in Mexico.

It will perhaps make the system more readily understandable to say at the outset that Mexico recognizes to the fullest extent the principle of private ownership of land, and the further principle that all such ownership must in the final analysis trace its authority back to the state. In the United States we have abstracts of title that in every case show that the rights of the present owner can be traced back to the United States Government. In the case of those lands which were owned privately at the time our government was brought into existence the title of the then owners has been confirmed by the United States so that without exception the owner of land in the United States has the authority of the government back of him. It is precisely the same in Mexico. There will be found there just about the same situations that exist in various parts of the United States. Before the Independence of Mexico land was held by grants from the crown of Spain. Those grants have been confirmed. Other lands were owned by the aborigines, generally in common by the members of a tribe or the inhabitants of a village. Their titles are respected. Whatever land has been occupied or privately acquired since the formation of the Mexican Government has been conveyed to its private owner by direct grant from the Government. The little public land that is still left in Mexico can be taken up by private individuals in the manner prescribed by the government and in such cases the locator gets a direct title. Thus in every case the private owner of land traces his right to hold that land back to the Government who either granted the land or confirmed the title of former owners.

Later on when the method of transferring title to land has been explained we will take up the question of evidence of title, the manner

TWO CROPS OF CORN LIKE THIS EACH YEAR

your own coffee and chocolate in your garden. With flowers planted here and there to add variety to the scene, the garden is a thing of beauty, where one's leisure hours can be passed not only with profit, but with the most satisfactory delight, for a garden was man's primitive home, and hence our natural abode. Anyone who admires the beautiful and loves nature would enjoy country life in Mexico.

American energy and initiative, as well as American capitalistic investment are flowing continuously over the borders into Mexico. Under the friendly relations that have grown up between this country and Mexico during the long extended administration of President Diaz, it has become almost as common for Americans looking for business opportunity to travel down into Mexico as it is to search for openings in Texas or Oklahoma. There is inviting opportunity in Mexico, not only for capitalistic enterprise, but for men with specially trained abilities.

CHAPTER V.

REAL ESTATE TITLES

By Robert J. Kerr.

IT is stated on the authority of the several Consuls and Consular Agents of the United States whose jurisdiction extends over all Mexico, that there has been invested in various enterprises in the Republic, over one billion dollars of United States money. Probably more than half of this immense sum has been invested in real property and improvements thereto, the title to which is held by the American owners under the laws of Mexico. It thus becomes of extreme importance to the foreigner who already owns real estate and to the prospective buyer, to know what those laws are. It is the purpose of this article to give a general idea of the Mexican system of land tenure and transfer. Limitations of time and space prevent more than a general outline of the subject which will be treated not from the standpoint of the lawyer, but from that of the investor who wants to get a general notion of how he is going to be protected if he becomes a land owner in Mexico.

It will perhaps make the system more readily understandable to say at the outset that Mexico recognizes to the fullest extent the principle of private ownership of land, and the further principle that all such ownership must in the final analysis trace its authority back to the state. In the United States we have abstracts of title that in every case show that the rights of the present owner can be traced back to the United States Government. In the case of those lands which were owned privately at the time our government was brought into existence the title of the then owners has been confirmed by the United States so that without exception the owner of land in the United States has the authority of the government back of him. It is precisely the same in Mexico. There will be found there just about the same situations that exist in various parts of the United States. Before the Independence of Mexico land was held by grants from the crown of Spain. Those grants have been confirmed. Other lands were owned by the aborigines, generally in common by the members of a tribe or the inhabitants of a village. Their titles are respected. Whatever land has been occupied or privately acquired since the formation of the Mexican Government has been conveyed to its private owner by direct grant from the Government. The little public land that is still left in Mexico can be taken up by private individuals in the manner prescribed by the government and in such cases the locator gets a direct title. Thus in every case the private owner of land traces his right to hold that land back to the Government who either granted the land or confirmed the title of former owners.

Later on when the method of transferring title to land has been explained we will take up the question of evidence of title, the manner of preserving the proof that the present owner actually holds a title that goes back to the government.

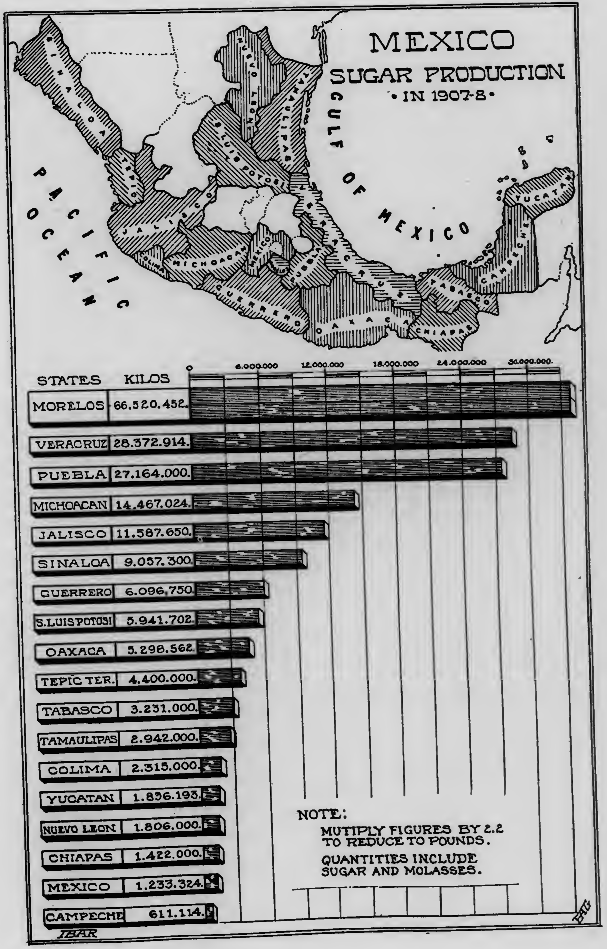
One of the fundamental rights flowing from the private ownership of land is the right to dispose of it. This includes not only the right to sell it but the further right to control its enjoyment and ownership after the death of the owner, the continuance of his ownership through his widow, heirs or legatees. In considering this phase of ownership two vital points of distinction between the systems of the United States and of Mexico must be noted; first with reference to the rights of the husband or wife and second with reference to the rules of descent.

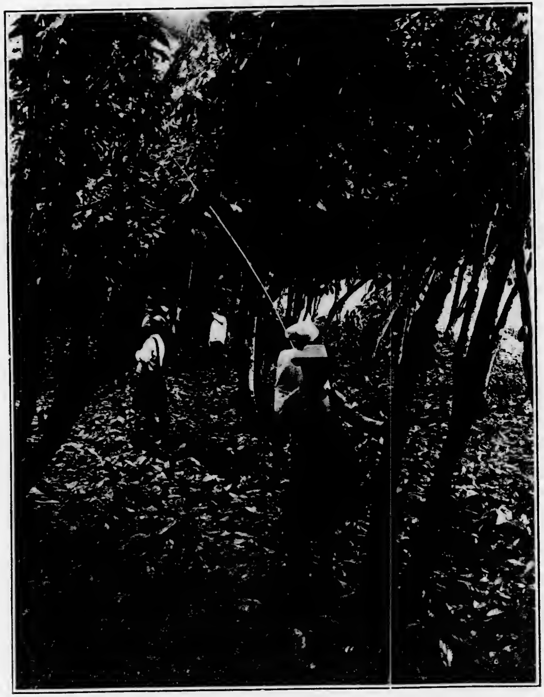
In the first article of this series it was stated that many points of difference are found between the Mexican and the United States systems and it was pointed out that these result from the fact that the Mexican system is based originally on the Roman and later on the French and Spanish systems. This difference is seen particularly in the two points above noted. Under the Mexican Code marriage is essentially a civil contract and the parties to it retain each his individual rights. So upon contrasting the marriage relation, unless the contract specifically provides otherwise, each party retains his individual property and can dispose of it by deed, will or otherwise without the co-operation or consent of the other party. But all property acquired during the marriage is considered as the joint property of the husband and wife and can only be conveyed by their mutual act.

The rules for the descent of property are absolutely different from those we are accustomed to, and follow very closely the rules of the civil law. The Civil Code details the rules of descent very elaborately in Articles 3571 to 3636. It is impossible to attempt to go into them within the limits of this article.

The foreigner owning or proposing to acquire real estate in Mexico should know something about the peculiar method of conveyancing which he will encounter in Mexico. The Mexican law (Article 14 of the Civil Code) recognizes and gives effect to a deed purporting to convey real estate in Mexico when it is executed in a foreign country in the form and with all the requirements recognized by the laws of that country. In other words if a deed as executed in any foreign country would be a valid conveyance of real estate situated in that country then it will operate to convey real estate situated in Mexico if properly described in the deed. Very little will be said about this method of conveying real estate situated in Mexico as in all cases it is preferable to arrange for the execution of the conveyance in Mexico under the laws of Mexico. But it should be noted that the deed executed in a foreign country must be recorded in Mexico and for that purpose must be legalized and protocolized, that is translated under order of court and copied in the archives of a Mexican Notary Public.

If the deed is made in Mexico it of course must be made in the form prescribed by the Mexican law. That law does not permit the owner to sit at his own desk and write out a deed, sign it, either before witnesses or before any officer, deliver it to his grantee and thus effect a conveyance of his property. The simple method recognized in





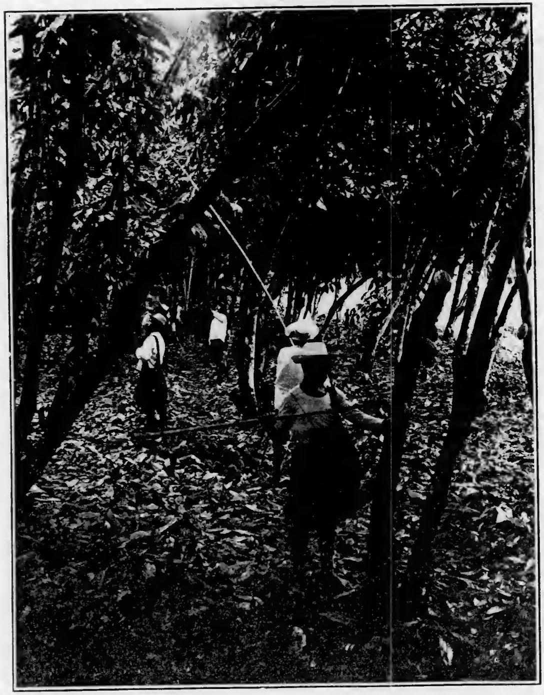
HARVESTING CACAO FROM FULL GROWN GROVE.

the States has no effect whatever in Mexico. And here again it may be interesting to note the reason why more formality is required. A conveyance is a contract, and moreover a contract relating to real estate in which the rights of many persons, the government itself even, may be involved. Very few contracts can in Mexico be made fully effective without being made in the form of public documents, public because the rights of others than the contracting parties may be involved, and hence any secrecy or privacy is to be prohibited and a formal method of execution provided so that the proof of the contents and execution of the document may be beyond question. Particularly is this essential in the case of contracts relating to real estate. Hence any transfer to be valid must be in the form of a public document. It follows from this that anything on which a transfer depends, as a power of attorney, must be executed with equal formality. Hence it may be said that all documents relating to the title of real estate must have the formality of public documents.

This term, public documents, as used in Mexico, is unknown in American law. To be public there must be necessarily a public officer who will have charge of them. This officer is called either a Notary Public or a Public Scribe. In some states of Mexico the first name is used and in a few the other. Generally the laws provide for a Notary Public in each Country or District of the State. When no Notary Public has been appointed in the County, owing perhaps to the small volume of business to be done, the law designates the State Judge of that County to act as Notary. In the larger Cities and Counties their number is limited and they all perform their functions under special laws governing their qualifications, appointment, responsibility and duties. Each Notary has a series of books provided by the government in which he records his official acts. If two parties appear before him, the one to sell and the other to buy real estate, the act of the Notary in authorizing the conveyance is considered an official act and as such is recorded in his books. That act so recorded is a "public document." Both parties must be known to the Notary and the seller must satisfy the Notary that he has a good title to the land he proposes to convey and that he has correctly stated the present condition of the title as to encumbrances, etc. Thus a deed by one having no title whatever to the land is impossible. Both parties sign, as do also witnessee to the transaction, all of whom must be known to the Notary. The signature of the Notary certifying the transaction as a whole follows the signatures of all the parties and witnesses.

The essentials of a deed of conveyance are prescribed in Articles 2811 to 2849 of the Civil Code and in the Notarial Law of December 19, 1901, Articles 49 to 70. There is no printed form such as we are accustomed to in the United States. Each transaction requires to be set out in the particular way necessitated by the facts of the case. The Spanish language must be used and there must be no abbreviations, corrections or blanks in the record of the transaction. The main requirements of a deed of conveyance are as follows:

1. The names, ages, occupations, addresses and status of all parties



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and witnesses must appear with the certificate by the notary that they are all competent legally to contract or act as witnesses. If they are not personally known by the notary, witnesses of their identity are required.

2. The words of grant equivalent to our grant in fee simple absolute must clearly appear.

3. The property must be clearly described generally by metes and bounds and part of the description consists in a statement of who are the owners of the adjoining lands, which statement is preferably made in connection with the description of each course. An essential part of the description is the name of the property. All large tracts are given names of their own, as "La Victoria," "Santa Cruz," "Hacienda del Carmen." City property is generally known by the number of the house and name of the street.

4. The price of the sale must be given, and an exact statement of the terms. Also, in the event of an exchange, the value of the property so exchanged as a part or the whole of the purchase price. Accompanying the statement that the grantor, if such is the case, has received payment of the entire purchase price.

5. The particulars of the grantor's title, that is to say, from whom he acquired title, on what date and before what notary the document was executed, and where and when recorded.

6. A statement that the property is not encumbered; or, if encumbered, a concise statement of the nature of the encumbrance, including its origin and record.

8. A statement that the price is a fair and just price agreed to by both parties, accompanied by the renunciation of the provisions of articles 1658 and 2908 of the Civil Code. These articles define the term known as "lesión," which means the under or over-valuation of property to the extent of more than one-third of its real value, and provide that, if the contracting parties have committed "lesión," the deed may be rescinded.

9 .It is usual to insert a clause by which the parties guarantee the reciprocal fulfillment of certain articles of the Civil Code. These are always inserted by the notary.

The deed itself remains with the Notary, being written out in his records. At the end of a certain period the Notary's books are deposited in the public Archives. Either party to the transaction may obtain from the Notary a certified copy of his record. It is this certified copy that the owner of land holds as a proof of his title.

The method of establishing title as against third persons is the same as in the United States. The transaction must be recorded in the County where the land is situated. The deed itself may be made in any part of the country. In order to use the certified copy in any state or district other than the one where the Notary is officiating his signature and authority must be certified to by the Governor of his state. In some states there is a Registry Office, in others the documents are filed with the Judge very much as the Clerk of the Circuit Court is in many counties of the United States made the recording officer.

When the deed is recorded in the country or district where the land is situated the current taxes must be paid. These are generally due every two or three months; and the taxes for the current period must be paid, if the deed is filed for record after the 10th or 15th day of the first month of the period. This date varies in different states. In addition to the tax required by the Federal Government, as represented by stamps above referred to, the states generally provide a tax for the transfer of title to property amounting often to one-half of one per cent of the value of the property. To this must be added 20 per cent of the amount as thus computed, which 20 per cent goes to the Federal Government in addition to the stamps above referred to.

There remains the question of how the title of the present owner is to be proved. Abstracts of title as they are made and used in the United States are unknown in Mexico. Instead the owner of a piece of property preserves the certified copies of the various transfers that have been made. It has already been stated that each document in the chain refers back to the previous one so as to indicate the derivation of the title in each case. Thus the entire collection of documents is bound to bear international evidence of being complete. Every document referred to in any of the ones presented must be produced for the inspection of the buyer. Furthermore each document presented bears the notation of the official who has recorded it and thus the original proof of recording is available in each case. Where certified copies are used instead of the document originally recorded the copy contains a certificate of the registry of the original copy. It should be remembered that in no case is the original document or "matrix" as it is called taken away from the public office where it is executed.

In addition to the certified copies of all the documents going to make up his chain of title the owner may obtain a certificate of the Recorder showing what, if any, incumbrances appear against the property on his records. A public register of titles is also provided for by the Federal Government, the keeper of which issues a certificate of title to the owner who presents his title papers and proves his title to the satisfaction of the Registrar under the terms of the law. This Certificate is made final evidence of the title of the holder. Owners of property situated at a distance from Mexico City where the Federal Registry Office is situated do not as a rule avail themselves of the federal law but rely on their series of titles.

After his first experience with the Mexican law as a party to a transfer of real estate the foreigner is apt to decide that the method is cumbersome and technical. But a long acquaintance with both systems inevitably forces the conservative man to admit that, while the red tape of the Mexican system hinders the ready handling of real estate as we are accustomed to see it handled and dealt in the United States it also abolishes and makes absolutely impossible many of the frauds and abuses that have grown up under our too informal system. We could with profit adopt into our system some of the points of the Mexican system.

BANANAS READY TO TRANSPORT TO BOAT.

CHAPTER VI.

TROPICAL MEXICO

Agricultural and Horticultural Possibilities. Irrigation Not Necessary Where Only One Crop a Year is Raised. Big Profits Await Intelligent Cultivation.

By H. G. HASTINGS.

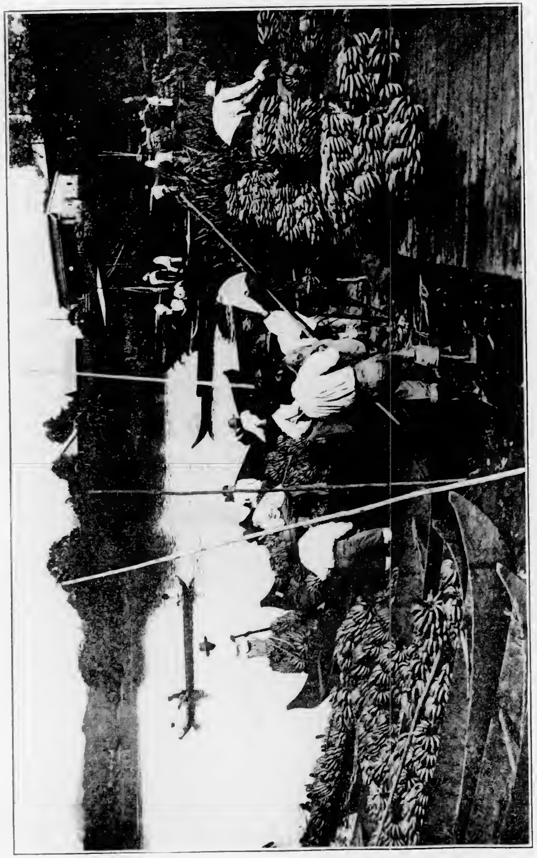
THE writer went down into tropical Mexico not as a promoter, not as an investor, but simply as an observer, familiar with both agriculture and horticulture under semi-tropical and tropical conditions. In slang phrase, that trip into the tropics was an "eye-opener."

In twenty-five years' contact with business opportunities under similar conditions and close observation, we must say that in no section have we ever seen such a combination, where all the three great branches of agriculture can be carried on so successfully; general agriculture, stock raising and fruit growing, and all of them on the same farm or hacienda. In the State one section is specially adapted to fruit growing, another section to the general run of farm crops, another to stock raising, each section having its specialty. In tropical Mexico one can be a planter or a fruit grower or a stock raiser or all three, as he may wish.

All that tropical Mexico needs now is the right men to fully develop it in a modern way. There is plenty of room for thousands of them in that practically undeveloped section. The foundation for great success is there in natural resources; the soil of almost inexhaustible fertility; the absolute freedom from frosts and freezes that have been so disastrous in the semi-tropical sections of the United States and Southern Europe and a sufficient rainfall to carry on all necessary operations without expensive irrigation; the climatic and soil conditions that enable one to grow almost any kind of crop he chooses to. So rapid is the growth of vegetation that the owner must keep his ground busy in crops, otherwise Mother Nature asserts herself and in almost no time tropical jungle conditions against exist. With the rich soil and plenty of moisture nature works overtime every day in the year. In agricultural operations not a day in the year need be lost, except for rain.

Up here in the States most of us have heard of Mexico as a country of mines and railroads, of mountains and deserts, of historic towns and cities, as a most interesting country for tourists to visit. Our information as to its agriculture is limited mostly to an occasional picture of a Mexican peon with his ox team and the primitive wooden plow.

Thanks to the energy of the mining promoter we know all about Mexican mines and the wealth that has been taken from them, but the writer is perfectly willing to go on record as predicting that tropical Mexico, once developed and in the hands of men of energy and intelli-



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FRUIT GROWING.

We in the States know the orange, lemon, lime, grape fruit, pineapple and banana. That is the end of our knowledge of tropical and semi-tropical fruits. Mexico can produce these in abundance and of the finest quality. She can not only complete profitably with Florida and California on the citrus fruits during the Florida and California season, but she can do better. With the use of the early varieties the tropics can place in market really sweet oranges, the kind that don't set one's teeth on edge, from six weeks to two months ahead of sweet fruit from Florida. The same is true of the pineapple. There is a steady and constantly growing market for bananas in the States. To successfully compete in the banana business is a case of growing the standard variety now grown in the Central American States, the banana that people in this country are accustomed to buying.

Limes grow wild in Mexico, and the American soda fountain furnishes an expanding market every year. A friend in the fruit business in Texas tells us that during a considerable portion of the year he is unable to get enough limes from Mexico to supply his trade in Texas and Oklahoma alone, and the soda fountains have to use the bottled lime juice from the West Indian Islands.

Of fruits like the delicious mango, the appetizing aguacate, that aid to digestion, the papaya and a number of others, the American, unless he had traveled in tropical countries, knows nothing. Once introduced into American markets they will make their own way as did the banana. The writer remembers the time when a banana was almost a curiosity.

The fruit growing and marketing of Mexico needs standardizing. In the present desultory fruit growing of Mexico little or no attention is paid to varieties or methods of packing, both all important factors in a successful fruit growing business. The fruits of various kinds produced in the present haphazard way show the commercial possibilities, once the problem is attacked by energetic men who want to make a business of it.

GENERAL AGRICULTURE.

In tropical Mexico a man has simply to take his choice of one or many crops. Its not an agriculture of wheat and oat growing that the farmer of the Northern States is accustomed to, but an agriculture of tropical products. At present rubber seems to be the main idea of the Americans in that section, with other crops as side lines. It is preeminently a sugar country, with no weather eye out for a probable frost that will prematurely stop a maximum production. The cacao (the cocao of commerce) is a sure crop and one for which the world markets are constantly expanding. In fiber plants no country in the world has such a profusion of them and they are of the easiest growth. In an article like this any enumeration of the various agricultural products is out of the question. Just one word here, however, about corn. It is the bread crop of Mexico. Everybody eats it in one form or another. In the uplands of Mexico there is a constant struggle to produce corn and many years Mexico has to let down the bars for the importation of American corn to feed a mass of population that would otherwise go hungry.

Down there in the tropics are lands now covered with tropical jungle, that can produce corn crops that would make even Illinois or Iowa corn growers sit up and take notice, and what is more those lands will do two and three times a year what Illinois land does once.

The Yankee corn growers may laugh at the primitive method of clearing off the jungle with a "machete," punching holes in the rich soil with a stick, dropping the grains in, chopping down the jungle sprouts with a hoe, but the corn planter in the Mexican tropics gets the corn just the same and sells it at prices that would bring dreams of fabulous bank accounts. What up-to-date farming methods would produce no one knows. Modern methods of corn growing, so far as the writer knows, have never been tried there. Practically speaking, it is an undeveloped country. The Americans who have settled there have done enough experimental work to show that almost everything in the way of crops can be grown—corn, rice, tobacco, sugar, etc., such as we are familiar with in the Southern States, as well as the numerous products belonging to strictly tropical agriculture.

LIVE STOCK GROWING.

The Mexican tropical jungle, once cleared and planted in native grasses is a stockman's paradise. Horses, mules, cattle and hogs seem to thrive equally well and the feed supply never gives out, and the same may be said of the market for the live stock product.

There is plenty of sorry looking stock down there now, but the importations of good blooded stock and its rapid increase show that it is the fault of the breeder or owner and not the country. In cattle some Americans have gone to Texas and brought down the Herefords or "white faces." Some of them have been there five years and none of them show any deterioration, neither does the Mexican born progeny. Big, sleek-sided cattle; fat, ablebodied mules and horses; hogs that no State in the Union need be ashamed of, all go to show what the tropics are capable of producing in that line.

A pre-eminent question to every stock-grower is the question of grass and plenty of it. The "Para grass" is the Mexican stock raiser's gold mine and when well established it is a fact that in tropical Mexico an acre of "Para grass" will feed a cow all the year aground. This being an established fact, practical stock growers know better than any long article can give, just what opportunities the tropics present for the stock grower. Americans who have been in the tropics for years assured us that stock growing with the ready market for the product has been of the greatest assistance to them, largely in bearing the expense of bringing plantations up to the producing stage.

THE JUNGLE AND WHAT IT SHOWS.

It is a common practice to make all sorts of criticism against those seeking to locate Americans in that part of Mexico. Some of this criticism is well meant, much of it is made in ignorance. The popular idea of any jungle is that it is a swampy growth, almost impenetrable and no fit place for white people; a section lurking with disease and death. In reality, the dense growth of vegetation simply indicates the inexhaustible fertility of the soil, the abundant rainfall to give the rank growth and the entire absence of frost or freezes to check or stop the growth. These conditions that make the rank wild jungle growth are just as active in making paying crops of agricultural and horticultural products, and therein lies the secret of the greater chances for profits in agricultural operations in tropical than in temperate climates.

Elbert Hubbard, a gentleman of much fame and many followers in the States, once stated that "all sin is nothing but misdirected energy." As we looked over the tropics of Mexico we could not help but think of the above saying. This tropical section is a great sinner in that sense. Hundreds of thousands of acres if properly directed by men of energy and common sense could feed and furnish both necessities and luxuries to the present population of Mexico and a liberal surplus for foreign nations.

CACAO PODS READY FOR SHIPMENT

CHAPTER VII.

BANANA GROWING

BY ARNOLD DRAKE METCALF.

ALL through the lowlands of Mexico the banana is as common as the apple-tree in New England, and few indeed are the native shacks in those sections of Michoacan, Morelos, Jalisco, Vera Cruz, Oaxaca, Puebla, San Luis Potosi, Sinalaoa, Tamaulipas, Tepec, Campeche, Chiapas, and Tabasco, favorable for its cultivation, that do not have their little banana grove near by.

BANANAS ALONG RAILROAD

Thus far, however, it is chiefly with the eye of the sight-seer or traveler that the banana in Mexico has been viewed, and one can scarcely find a snapshot film, brought up from the tierra caliente, which does not somewhere reveal this staple of the tropics.

The uses of the banana in its natural habitat are so many, and its growth so exuberant, that it might, with equal propriety, be classed as a weed, a vegetable or a fruit, nor does it need much more cultivation than the apple-tree. In planting a banana tree, a shoot or hijo, is stuck in a little hole in the ground. Within a few months the shoot assured us that stock growing with the ready market for the product has been of the greatest assistance to them, largely in bearing the expense of bringing plantations up to the producing stage.

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The uses of the banana in its natural habitat are so many, and its growth so exuberant, that it might, with equal propriety, be classed as a weed, a vegetable or a fruit, nor does it need much more cultivation than the apple-tree. In planting a banana tree, a shoot or hijo, is stuck in a little hole in the ground. Within a few months the shoot has become a stalk ten or twelve feet high and perhaps six inches in diameter; then a bunch appears in bud and, in about a year from the time of planting the fruit is ready for the gatherer's machete.

The banana has a curious and prodigal method of propagation. Even before the parent stalk and its fruit have matured, new ones begin to spring up. These are off shoots that grow from the root of the original planting; somewhat like sprouts from the 'eyes' of a potato, and each of these new hijos, in turn, becomes an adult stalk, with its fruit. Since this process is repeated indefinitely, it follows that unless most of the continually appearing new plants are cut out—which is the practice—the first stalk, in a few years, will become the center of a miniature jungle, spreading in all directions until the soil is overburdened with an enormous mass of stalk and leaf growth, and stunted fruit is produced.

HAULING BANANAS.

In cultivation, therefore, four suckers—which is another name for the shoots—are usually allowed to grow in one hill, and their gradations are so arranged that while the oldest is bearing fruit, the next is in blossom, the third is half grown, and the last is just coming forth from the ground. The constant renewal of the plant, together with the uninterrupted growing season of the tropics, makes the banana a sort of botanical roman candle, keeping four potential bunches of fruit in the air at once. This, at least, is the ideal vision of the banana grower, and though it is seldom or never realized on the large scale that inexperience expects, the productivity of the plant, and the good profits of a banana plantation favorably situated and properly cared for, do not require unfair exaggeration.

In planting for the market, about 200 hills are allowed to an acre. Sometimes the number can be safely increased to 225, in which case

after one year, there will be 900 stalks on the same area. But the grower should not expect 900 bunches of bananas a year for each acre under cultivation. "The fact seems to be," says Edward Perry, author of "Bananas," and a well-known authority, "that the average yield is nearly 275 to 300 full bunches to the acre per annum."

In his litte work on bananas here quoted, the author, in speaking of acreage statistics on the subject, says:

"Reports which cover many years of experience of planters of all degrees of ability, and of lack of ability, in the West Indies and on the coasts of Central America and of Mexico, show that the average annual yield, the income, the cost and the profits of banana culture were as shown in the table given here.

The banana is one of the thirstiest of plants, and can not be expected to produce its maximum amount of fruit in districts that have less than one hundred inches of annual rainfall. Its yield varies widely as with almost all agricultural products, and is dependent on the richness of the soil, the rainfall, and the intelligence with which the plants are handled. This thirstiness of the banana, no doubt, accounts for the fact that it usually flourishes most vigorously—other conditions being equal—within a short distance (say a mile or two) of large streams. The occasional floodings to which banana plantations along the banks of rivers are subjected are not at a disadvantage, since the land is irrigated, and rich alluvial deposits are left by such occurrences. Too frequent floods, of course, would result in great or even irreparable damage.

Countries	Yield	Income	Cost	Profit
Costa Rica	250.0	$70.67	$28.84	$41.83
Guatemala	267.5	89.54	30.82	58.72
Honduras	377.4	82.63	15.79	66.84
Jamaica	288.0	78.82	19.85	58.97
Mexico	290.0	89.00	20.25	68.75
Nicaragua	246.2	62.18	15.89	46.29
Average	284.8	$78.81	$21.91	$56.90

Broadly speaking, the banana can be made to thrive and bear fruit—though the vital question of transportation facilities must always be considered in a commercial proposition—anywhere below the twenty-fifth parallel of latitude, if the rainfall is heavy and the altitude does not invite danger of frost. A frost-producing temperature cuts down the banana like a reaper.

The plant has but two natural enemies—gophers and wind storms—and against all other tropical conditions its hardihood is remarkable. It even holds its own amid all sorts of weeds and climbing vines, though such neighbors should, of course, be kept from its vicinity. It is practically immune from insect pests, and a worm-eaten banana, or the stalk of a banana plant destroyed by any of the innumerable boring insects of the tropics, is unknown. The gopher is successfully fought by the use of carbon bisulphide, and damage from high winds can be entirely averted, or minimized, either by planting in locations having natural prohas become a stalk ten or twelve feet high and perhaps six inches in diameter; then a bunch appears in bud and, in about a year from the time of planting the fruit is ready for the gatherer's machete.

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Bananas are not very particular with respect to the chemical composition of the soil wherein they grow. It is the temperature and moisture about which they are exacting. In the city of Tegucigalpa, Honduras, for instance—at an altitude of 3,600 feet above the sea—there is a field of platanos (a species of the Musas) which thrives so well that it supports the owner in comfort. At that altitude the temperature sometimes falls below 65 degrees Fahrenheit, which is still somewhat above the danger line of cold. The secret of this particular field's prosperous survival lies in the fact that it stands on the border of a river that flows some thirty feet below, and the bananas take up the water that seeps through the earth in which they stand.

Turning now from that phase of the subject which deals with the banana as a plant, let us consider somewhat more in detail the business aspects of banana-growing, particularly as they may relate to conditions in Mexico, and to the world-market which exists for the fruit.

We have seen from the table above quoted that the average figures for Mexico, obtained by a dozen years of experience, showed an average yield of 290 bunches to the acre, produced at a cost of $20.25, or almost exactly seven cents a bunch, and that the crop sold for an average price of $89 an acre, or thirty cents a bunch.

In Costa Rica, during the year 1902, according to Perry's little book, the average price of bananas on the plantation, "was equal to at least 27 cents a bunch," and in 1903, "the price was raised to 31 cents a bunch on contracts to run three to five years." During that same year of 1903, according to statistician Perry, the figures from plantations covering 550 acres in Costa Rica showed that the banana cost 10.2 cents a bunch to produce. He then goes on to say:

"It may be possible that if one will allow two or three stalks to rise from each stand of bananas, and together mature their fruit, he may get 444 to 780 bunches from an acre each of a few years, and that in such a case he might get $185 to $278 for the crop; but it will be clear to all that he who expects to make 280 bunches per annum from an acre and get only $50 to $60 profit therefrom, will be safer than he who invests his money with the expectation of making greater gains. * * * The cost of producing bananas after the first crop from a plantation is confined to cultivating and harvesting, which may be done for $10 to $20 per acre yearly."

In addition to the cost of production and the selling price of bananas, there is another element which plays an important part in determining whether or not the industry is built on a sound foundation. That element is the extent of the demand—the size of the market. On this phase of the subject there is probably no dispute. It is a matter of common knowledge that very few bananas, comparatively speaking, were imported into the United States and Europe about twenty years ago. In 1902 the English consumption of the fruit was about 2,800,000 bunches, and that of the United States, about 25,000,000 bunches. Last year—1907—the United States took some 37,000,000 bunches, and England perhaps 6,500,000. The figures of Germany, Canada and France are not available, but though neither bought the quantity that England demanded, their consumption is growing. These figures would seem to indicate the existence of an increasingly wide and dependable market.

The final and decisive factor in the problem of profitable banana planting, however, is that on which rests the question of profit or loss in almost every other agricultural or manufacturing enterprise—the factor of prompt and economical transportation for the article produced.

In considering this question of transportation in its relation to the great tropical fruit staple there are several facts to be considered—facts that are, for the most part, peculiar to the banana alone. Here are some of them:

Except at ports where an export banana-trade is already established, and where steamers call at regular and frequent intervals, bananas are saleable only in cargo lots consisting of 10,000 bunches or more.

Since bananas cannot be kept for a considerable length of time except under cold storage conditions that do not exist in the tropics, a plantation in full bearing must ship its fruit at frequent intervals, and to do this, if not in the neighborhood of other similar cargo sources, requires a plantation of from 1,500 to 2,000 acres.

Bananas do not take kindly to overmuch handling, and since they do not mix well with other freight they are carried in cargos by themselves.

They must invariably be taken from their point of origin to their market, a distance of from one thousand to several thousand miles, by water.

"He who would grow bananas for market," therefore, says Perry, "must plant on the borders of some navigable waters giving access to some harbor or anchorage where ships may safely lie while receiving the fruit." The large companies dealing in the staple make it a general rule that bananas must be placed by the grower, or growers, in cargo lots, alongside steamers that draw from twelve to fifteen feet. Often, in order to meet this condition, the bananas are sent down the rivers along which they grow by barges, and then out through the surf to the waiting vessels. A considerable percentage of the world's supply is shipped in this way, for, as Perry's work points out, "most Central American and Mexican rivers are obstructed at their mouths by sand-bars, over which ships cannot pass."

Heretofore Central America has been—and still is—the chief source of supply for the world's bananas. Some parts of that region, such as Bluefields, in Nicaragua, are exceptionally favored for banana-growing because of their unobstructed rivers into which ocean-going ships may steam for fifty miles after cargo, as they do in the Rio Escondido. Yet millions of bunches of bananas have also been shipped from the open coast of Honduras, and that Central American country, though not favored with deep rivers, will continue to make vast shipments, as will Guatemala. Costa Rica and Salvador.

In recent years, however, Mexico has gradually become more important as a banana-shipping country, and the cause of her development in that respect is not far to seek. The regions of the earth where the banana may be grown are limited, and of those regions, only a small part, for the reasons herein stated, can be devoted to its culture with assurance of commercial success.

The climate of southern Mexico is admirably suited to the banana and this region, furthermore, has several rivers which assure water transportation to the fruit that may be grown along their banks. Already there are steamers running from Galveston to Mexican ports for banana cargoes, and in addition to the plantations now engaged in the export trade, others are in process of development. The cost of banana land in the Republic is from $10 to $15 an acre, and it can be cleared and made ready for planting for about $40 to $50 an acre more.

Some of the rivers, with unobstructed mouths, permit the free entrance to the fruit boats, and others, now closed to vessels by sand reefs, are to be made navigable by dredging. Long stretches of their banks are too frequently flooded to be safe for banana culture, but many other miles are hardly to be excelled for the purpose, and are destined to play a leading part by placing Mexico high among the banana producing countries of the world.

YOUNG ZAPUPE FIELD

CHAPTER VIII.

CITRUS FRUITS

Growing These Fruits is Extremely Profitable in Mexico, the Profits Ranging from $200 to $600 per acre. Come on Market When Fruit is Not Available from Any Other Source.

THE growing of citrus fruits and pineapples is an industry which is rapidly coming into favor in Mexico, owing to the fact that the climate is ideal for the culture, the ripening is at a season when the markets are bare of these tropical fruits and the further fact that there is an exceptionally large profit to be realized from these crops.

Instead of importing trees from the United States many nurseries have been established in Mexico. The improved trees of the United States are budded on to the sour native stock of Mexico and this makes an ideal tree. The Mediterranean sweets and the Satsuma varieties are those which are proving the most successful.

There is very little trouble from tree disease or insects. The San Jose scale cannot live in Mexico. It was introduced while importing trees from California but died out without any particular effort on the part of the growers, showing conclusively that the pest cannot survive in the Mexican climate.

Experiments by practical growers, after years of shipping, show that oranges will yield $560 per acre, lemons $300 to $325 and grape fruit $600.

Grape fruit is planted fifty trees to the acre and the average yield is four boxes to the tree, thus an acre producing 200 boxes. This fruit commands an average price of $3 U. S. currency, f. o. b. in Mexico, thus the gross yield being $600 per acre. Deducting even fifty per cent, which is far too high, as the cost of cultivation, you have a yearly income of $300 per acre.

Orange trees are planted seventy to the acre. The average yield is four boxes, or 280 boxes per acre. The average price is $2 U. S. currency, f. o. b. in Mexico, or the yield $560 per acre gross.

Lemons are planted fifty trees to the acre. The average yield is five boxes to the acre, or 225 boxes. The average price, f. o. b. Mexico, $1.50 U. S. currency per box. Gross yield per acre, $3.00 to $3.25.

The harvesting season begins in October and continues through November, December and January, just at the time when this kind of fruit is commanding the highest prices in all the markets of the world, and at a time when there is practically no competition for growers.

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CHAPTER IX.

PINEAPPLES

THERE is no surer and very few more profitable crops that can be grown in Mexico than the pineapple, and many Americans are turning their attention to this fruit. About 4000 plants are set out to the acre. Granting only one apple to a tree and placing the average price at 20 cents per apple, both of which estimates are low, an acre in pineapples will average $800 per year; not a bad income, especially in view of the ease of cultivation and the little chance of loss.

PINEAPPLES READY FOR PICKING.

The apple grows from shoots that spring up in great numbers, around the base of the mother plant, when fruiting is completed. The shoots will produce ripe fruit in from twelve to eighteen months, owing

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The apple grows from shoots that spring up in great numbers. around the base of the mother plant, when fruiting is completed. The shoots will produce ripe fruit in from twelve to eighteen months, owing to the variety. There are a number of varieties, which ripen at different seasons, producing fruit of varying sizes. Pineapples weighing from ten to twenty-eight pounds are often seen. The crop is a sure one, and the apples sell in the markets of Mexico at from 20 cents to $1.00 each.

The most important point to be considered in the cultivation of the fruit is the proper selection of the soil. The growing of the plants depends very largely, of course, upon the conditions of the soil, and also the flavor of the fruit is very largely determined by it. The soil must be light, loose and open, as the production of the best fruits depends not so much on the character of the soil as upon the condition of it. There must be perfect drainage, as stagnant water about the plants, or even at the roots of the plants will result disastrously. A deep subsoil is far better, so that in the event of continued rains there will be sufficient drainage to protect the plants.

Before planting, the earth must have been properly cleared of roots and all obstacles in the way of perfect cultivation. The soil must be cultivated to a depth of not less than ten inches, and the surface must be given a perfect cultivation in order to get rid of surface growth which would retard the growth of the small plants or prevent their proper cultivation.

The preliminary work and the perfect condition of the soil will very materially increase the life of the plants and prevent an early replanting, which is an item of expense which must never be forgotten. If proper cultivation has been given the soil previous to the first planting and careful cultivation given after the plants have been set in the field, it is easy to care for the plants afterward and bring out the best results.

The continuation of the crop, as is well known, is by means of the cultivation of the shoots, or young plants which grow alongside of the mother plants. These, if given proper care, will produce fine plants. And as it is of prime importance to produce a good large plant (since they bring better price, and the cost of handling a small plant is as great as the large one) it is of great importance that the mother plants should be brought to the highest stage of cultivation so that the new plants may be of good size and strong and vigorous.

LAND WAITING FOR THE PLOW.

CHAPTER X.

CULTURE OF COTTON

WHERE any attention has been paid to the cultivation of cotton in Mexico, especially in the tropics where there is an abundance of rainfall and in other sections where water can be secured for irrigation, the crop has proved very profitable, the yield being from one to one and one-half bales to the acre. The staple is of good grade and the Mexican market consumes much more cotton than has yet been raised in Mexico. Where there is water power a number of cotton mills have been erected and much cotton is now imported from the United States.

The ordinary cotton of the South as well as the Sea Island varieties have been grown with profit and experiments with the cotton tree may prove very valuable.

In the Laguna district near Torreon, much cotton is now raised with profit. Nearly 60,000 bales were shipped from there last year and sold at about one cent more than the prevailing price in the United States, owing to the duty on cotton imported into Mexico. Despite the duty over $5,000,000 of cotton was brought in from the United States.

Cotton in the Laguna district is raised by means of irrigation. Such land is now selling for $400 gold an acre and not on the market, except at rare intervals, at that price. In the tropics, where cotton yields more per acre than the Laguna district and where ample rainfall does away with the necessity of irrigation, land can be had at a very reasonable figure. Many American growers are now putting in cotton in the tropics and are finding its culture to be very profitable.

Realizing the great future for cotton the Agricultural Experiment department of the National government, at the head of which is Dr. Pehr Olsson-Seffer, has successfully introduced a new variety known as Caravonica cotton, which yields much more per acre than the ordinary cotton and which is perfectly suited to a tropical climate. Of this cotton Dr. Olsen-Seffer writes:

Less than ten years ago an Italian scientist, Dr. David Thomatis, began growing cotton in tropical Australia, and in order to develop a variety suited to the local conditions he experimented with various forms of cotton, until he succeeded in obtaining a very prolific variety, now known as Caravonica cotton. It is a result of hybridizing two Sea Island varieties, one from Mexico and the other originating on one of the tributaries of the upper Amazon. The Mexican variety was chosen for its length, fineness and gloss, the Amazonian for its length and strength.

Three years ago Caravonica cotton was introduced into Mexico by the writer, who obtained seeds from Dr. Thomatis, the originator, to the variety. There are a number of varieties, which ripen at different seasons, producing fruit of varying sizes. Pineapples weighing from ten to twenty-eight pounds are often seen. The crop is a sure one, and the apples sell in the markets of Mexico at from 20 cents to $1.00 each.

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Three years ago Caravonica cotton was introduced into Mexico by the writer, who obtained seeds from Dr. Thomatis, the originator, in Queensland, and planted them at La Zacualpa Botanical Station on the Pacific coast of Chiapas, where they developed remarkably well and have yielded abundantly a long stapled, strong and very silky cotton. The experimental growth of this cotton was then successfully undertaken in different parts of Mexico, and it was demonstrated that it develops best on the Pacific Coast with its distinct seasons, which are similar to those existing in northern Queensland, the home of the Caravonica cotton.

Caravonica cotton excels any other known variety of cotton. The writer reported to the Department of Commerce and Labor that "in 48 days after planting the trees were eight and a half feet high, with a spread of branches of four and a half feet. As the germination takes ten days this growth really takes place in 38 days. I counted 82 flowers on a tree eight months old."

It is a perennial bushy tree and grows to a good size. Trees twenty feet high are common, but under cultivation the trees are pruned each year after cropping, and continue to yield profitably for from five to eight years. In the United States only herbaceous cottons are grown.

The principal feature of the Caravonica is the heavy yield of cotton per acre.

It is planted about 7 x 7 feet, giving 900 trees to the acre. A single tree yields from 300 bolls upward in a single season. Trees over two years old frequently yield 700 bolls.

The yield of lint is very remarkable, varying from 48 to 62 per cent. Dr. Thomatis states that his average yield has been, 1,200 pounds clean lint to the acre.

In New Guinea Caravonica grew 28 feet in one year without cultivation, and gave seven pounds of bolls of 55 per cent. lint at the first picking, or 18 pounds of bolls during the season.

The proportion of lint of the best varieties of cotton has varied from 28 to 45 per cent. of the seed cotton. Caravonica produces in Queensland 60 per cent. of lint and up to six pounds weight of it per tree. With 300 to 500 bolls each tree bears from four to seven pounds seed cotton, or about one and one-third to two-third pounds clean lint. On an average 110 bolls will give one pound lint and one pound seed. In Mexico, Caravonica has given somewhat over 1,200 pounds clean lint to an acre, or 2,356 pounds seed cotton. The average of the cotton belt in America is 531 pounds seed cotton per acre.

An acre of Caravonica produces about three pounds cotton seed. This comes out quite clean and flossless from the gin. Unlike the ordinary American upland cotton which possesses seed covered with short lint, and is white in appearance, Caravonica has clean black seed similar to Egyptian cotton, and is ginned by the roller gins, and not by means of saw gins.

Caravonica begins to bear a maiden crop at seven to eight months from sowing. It needs but little cultivation except thorough weeding under the trees.

Caravonica is very healthy and highly resistent to pests. This has been the experience in every country where it has been grown.

Caravonica is easy to pick, on account of the large size of the bolls, running about fifty to a pound. The bolls open well but hold the seed firmly, so that it does not easily blow off.

There are two varieties of Caravonica cotton, one known as "wool" and the other as "silk." The former yields as a very rough and strong, but regular fibre, while the latter produces a silky and long staple with great strength. The former cotton is very serviceable for mixing with wool, while the latter is advantageously used with silk in spinning.

Grown with expensive labor in Australia Caravonica is realizing $150 per acre.

The crop extends for five or six months.

Caravonica is essentially a tropical crop, and is adapted to the tropics only.

It is generally conceded that Caravonica cotton is too good and too expensive a quality for nine-tenths of the Lancashire spinners. While fair middling American cotton this season has brought 14 cents per pound, the current grades of Egyptian cotton fetched 24 cents, Caravonica Silk, 32 cents, and Caravonica Wool, 29 cents. At the same time 30 cents per pound was paid for high standard Sea Island.

For proper cultivation of Caravonica cotton the land must be well prepared, which represents a comparatively high initial outlay, as the primeval forest has to be felled and burned, and the land stumped and plowed.

Removing stumps by the use of dynamite is a very simple operation and costs about five cents per stump. A small cavity is made in the lower part of the stump, the cartridge dropped in and the fuse ignited. There are also several kinds of stump pullers which can be used.

The land should be plowed deep and close, breaking the surface thoroughly, and should then be cross-harrowed to pulverize and smooth the surface.

The rows are then marked off seven feet apart, and the soil is bedded up by running a turning plow on each side of the row.

The seeds should be planted by the end of May or in June after the beginning of the rainy season, in order to be able to gather the cotton in the dry season in as good condition as possible.

For planting, gangs of three laborers are employed. One opens a hole with a hoe on the top of the bed at intervals of seven feet; a second man following with the seed and drops two or three in each hole; and a third man follows and covers the seed carefully with a hoe, one or two inches deep.

In less than two weeks the plants are up, and when they art four or five inches high, they should be cultivated with a hoe, after which a plow is run on each side of the bed throwing the earth onto the plants. During the "first working" all but two cotton plants to each hill are pulled out.

At the "second working" the space between the rows is plowed out, and this leaves the plants on a large bed with drain furrows in the middle between the rows. After the plowing a hoeing crew follows, straightening up the plants and pulling out all but one to each hill.

At the "second working" the field is passed over with a cultivator every two or three weeks, until the cotton begins to open. This "barring off" to clear grass and weeds from the side beds is generally done with a light turned plow.

During the first five or six months a catch crop of corn and rice can be sown between the cotton, which will practically pay for the expense of cultivating the latter.

CARAVONICA COTTON

After the first picking the plants are thoroughly cultivated, which results in a second picking.

Just before the rainy season the trees should be well pruned and after cropping, a severe pruning is useful in preventing the development of insect pests.

CHAPTER XI.

RANCHMAN'S OPPORTUNITY

WITH the last big ranches in Texas and the west being cut up into farms, the cattle raisers of a few years ago have had to look elsewhere for cheap land on which to graze herds which to supply the world with beef in the future. The Texas ranchmen first saw in Mexico the land of promise and within the last few years many successful ranches have been established in the Republic.

Cattle can be raised in almost any part of Mexico with profit. The cheap lands in the highlands and in the mountains give an excellent open range and thousands of head are now grazing on the hillsides. Here the cattle can find a living range all the year and during the rainy season can put on enough flesh for the market.

The grade of cattle in Mexico has been very inferior, but of late years much attention has been paid to breeding up the stock and it has been found that blooded cattle can be raised in Mexico cheaper than in any other parts of the world.

The rich plains of the tropics are esteemed by cattlemen as the world's best range. These fertile lowlands where the climate is always equable are covered with nutritious para and privilegio grass on which cattle can be fattened for the market the year in without other feed of any kind. Often the mountain range cattle are run down in the tropics for a month or six weeks to take on fat enough to make them bring the top market price at the slaughter houses.

Cattle, hogs, horses, mules, burros, sheep and goats can all be raised with much more profit and less expense in Mexico than in the United States. To encourage breeding fine cattle the Mexican Government permits importation, duty free, of all blooded cattle for breeding purposes.

In regard to the opportunities of ranchmen in the tropics the following report by United States Consul Wm. M. Canada of Vera Cruz, will apply with equal force to all of the millions of acres included in tropical Mexico:

Large investments have been made in the interior of the Republic and with satisfactory results to the investors in every instance, yet nothing has been done here (Vera Cruz) where better conditions obtain, and better results are possible than in any other part of Mexico.

The entire coast region, extending from ocean level up into the foothills to an altitude of 2000 feet, offers almost ideal conditions for breeding and fattening cattle for the markets of the Republic, especially Yucatan and also the Cuban market. On the low plains of the coast native grasses furnish abundant pasturage the year round, and lean cattle on these plains are rarely seen.

At the "second working" the space between the rows is plowed out, and this leaves the plants on a large bed with drain furrows in the middle between the rows. After the plowing a hoeing crew follows, straightening up the plants and pulling out all but one to each hill.

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It is only during the months of April and May that a really dry season prevails, and unless the investor is tempted to overstock his range and cause a shortage of the native grass, there will be sufficient pasture to tide over this. There is some little trouble from ticks and worms, but these pests are not more serious here than in Texas and other regions already known as good cattle country. Native cattlemen, who carry on the business on a rather small and uncertain scale, do very well, and modern methods carefully applied and methodically pursued would overcome entirely, or most entirely, every difficulty that might present itself in the management of the business in this State.

MOUNTAIN RANCH SCENE.

Carefully selected lands, which can be secured in large or small tracts, may be obtained at from $3 to $7, United States currency, per acre. A range, to offer the best conditions, should be so selected as to include some low plain and some hilly land, running up some hundreds of feet above sea level. On such a range the cattleman can make himself independent of drouth and also secure himself against disease among his stock. He will have on the coast plains abundant native grass for running his cows and young cattle for ten months of the driest years, and in case of a severe dry season he can have in reserve made pasture, planted in Para or Guinea grass, where he may drive

his herds and be sure of abundant feed for them. In case of danger from disease, he may run his cattle up out of danger and feel that his investment is safe.

The cattle business, in order to give quick returns, requires here, as in dry regions, a heavy investment. Ten thousand acres of land would require an outlay of from $30,000 to $65,000, United States currency. To stock a range of this size at once will also require a large capital. The returns on such an investment, of course, would be proportionately great, and within about six months from the time of making it. The investment that would in the long run give the most satisfactory returns, is that which would come from the purchase of native cows and breeding them to Devonshire bulls, imported while under one year old. Such cattle would acclimatize readily and but few losses would occur. The death rate among older bulls would be much greater. Such breeding would give, within three years, cattle that could command the highest prices, and would run not much below $38 per head in the pasture.

One American in Southern Vera Cruz has built up a very profitable business in breeding Devon bulls for sale to native stockmen. By careful and judicious crossing he has developed a Mexican Devonshire, a little smaller than the imported, but retaining all his good qualities of rapid growth and early maturity. Any breeder can by close attention to the business in a very few years develop on his own range such a breed of cattle, and make a large return on his investment. The quickest returns from cattle, however, may be secured by buying thin cattle and fattening them on the grass in the foothills of this section. By securing a large tract of land in that locality and planting Guinea and Para grasses a range can be prepared for fattening such cattle where the investment is doubled every year. These grasses grow most luxuriously the year round without a thought of irrigation.

When the pastures are ready, the stockmen can secure native cattle from 3 to 4 years old up in the interior, the States of Hidalgo and San Luis Potosi, at from $7.50 to $12.50 per head, and drive them overland to his pastures. In most cases the prices will cover all costs of driving the cattle to Vera Cruz. In the luxuriant pastures of the moist lower levels the lean cattle will take on flesh very rapidly, and within ten months afterwards will be worth on the range from $25 to $35 per head. It is readily seen that such an investment is a good one, and that the risk to the investor is very small. I am told that the matter has been tested and with very satisfactory results.

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SUGAR CANE FIELD, A FINE REVENUE PRODUCER IN MEXICO.

CHAPTER XII.

SUGAR AN IMPORTANT INDUSTRY

What Sugar Produces to Acre In Mexico—Over 250,000,000 Pounds the Annual Output and this Industry is Yet in its Infancy.

THE SUGAR grown in Mexico will gather about 40 tons of cane to the acre. This will produce about 180 pounds of sugar, which sells at about 10 cents a pound, giving a yield of $18 per acre. The residue in shape of molasses is distilled into Aguardiente and will add $75 an acre to the yield. Thus an acre planted in sugar cane will give an average annual production of about $90 to $95 per acre.

The editor of the "Hacendado Mexicano," the official paper of the sugar industry in Mexico, gives the following figures on the production of sugar:

"On the basis of 1,000 acres of sugar cane at the low average of 40 tons to the acre and 180 pounds of sugar to the ton, with the molasses distilled and made into aguardiente, a plantation would give a revenue at the end of the third year of $666,000. The disbursement for the three years, in expenses of an up-to-date sugar mill, with all the necessary horses and implements, salaries, animals, clearing and planting the land, as per the usual management in a sugar plantation, amounts to $349,000, which leaves a net revenue at the end of the third year of $317,000."

Although Mexico's sugar industry may yet be said to be in its infancy, only a very small portion of the land available for sugar growing being now used, yet the annual crop had reached the stupendous amount of 123,285,312 kilograms or over 250,000,000 pounds. To this must be added 70,947,573 kilograms or over 140,000,000 pounds of molasses and 50,000,000 kilograms of panela or 100,000,000 pounds. The total thus reaches, in all classes of sweets from sugar cane, a total of over 500,000,000 pounds.

Every year sees more acreage and better sugar mills. Mexico is not at present turning out much refined sugar and there is a big field in that country for the refining of the best grades. Molasses is not in very great demand and a great deal is used in making alcohol, an important product.

The sugar industry is protected by law effective from midnight of February 15, 1908, whereby raw sugar, sugar candy, and refined sugar of all classes were made subject to an import duty of 5 centavos for each kilogram of weight.

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The 123,000 tons given as the year's output shows a gain of 4000 tons as compared with the preceding year, while for 1908-09 a production of 125,000 tons is predicted, owing to the installation of new sugar houses and the remodeling of old plants.

The shipment of raw sugars to England is being profitably carried on and the acreage is being increased every year.

United States Consul W. W. Canada, Vera Cruz, reports to the Department of Commerce and Labor at Washington, that in that district about San Gabriel plantation, on the Manso river, in the State of Vera Cruz, sugar is put on the cars at a cost of one cent a pound.

Southern Mexico has practically unlimited possibilities for the production of sugar. Its tropical climate, the marvelous productivity of its soil, cheap labor, prohibitive import duties and liberal laws, create conditions extremely favorable to the growing of sugar cane and the manufacture of sugar.

Sugar costs the planter in Southern Mexico, every expense in field and factory included, from 2 1-2 to 3 cents per pound silver, and the market price averages 8 cents per pound silver. Just now the price is down to 6 1-2 cents, but even at that figure there is a profit to the producer of over 100 per cent. Last year, in the city of Vera Cruz, the price averaged 11 cents per pound..

Briefly stated, the conditions tending to these results are as follows: Sure and abundant crops of sugar cane, raised without fertilization or irrigation; cheap labor (50 cents silver per day and rations); a high grade staple food product and a home market at very profitable prices.

With regard to non-irrigation, this does not apply to all parts of the Republic. In the older sugar growing sections, immediately south of the City of Mexico, the planters do have to irrigate, but on San Gabriel and in the surrounding district the rainfall averages 120 inches per year, well distributed for the growth of cane. In order that a full realization may be had of the importance of the item of cheap labor, it must be appreciated that labor is between 60 and 70 per cent of the total cost of manufacturing sugar. The cost of labor in gold standard countries is from $1.25 to $1.50 per day in gold. The same labor in Mexico costs from 30 to 50 cents per day in gold, including rations. Assuming the cost of cultivating, manufacturing, packing and transporting the sugar from one acre of cane at $100, $65 of this amount would be for labor in the gold standard country. The cost of this labor in Mexico would be one-third of $65, or $21.66, making an approximate saving of $43,340 per annum, gold, on 1,000 acres of cane.

CHAPTER XIII.

ZAPUPE GROWING

By **RUSSELL HASTINGS MILLWARD**, Former American Vice Consul at Tampico, Mexico.

PROSPECTIVE investors may search the world over, but they will not find an industry that presents so many attractive features as that of the zapupe. The growing of the plant is simplicity itself; returns are prompt and consistent; a small capital only is required with which to operate; a ready market for the product can always be found at home and abroad, and large profits are positively assured. Land, undesirable for any other purposes, can be purchased at a reasonable figure and easily adapted to the culture of zapupe. The constant attention of the planter is not required, as the cultivation practically takes care of itself and grows with such regularity that the possibilities of the area can be readily determined at all times.

Settlers are rapidly taking up territory in the States of Tamaulipas and Vera Cruz, and the systematic and extensive cultivation of this valuable fiber plant will shortly form one of the leading industries in this district.

It can not be definitely stated just when zapupe was first known in the States of Tamaulipas and Vera Cruz, but there is every indication that it is indigenous to this section, and that for decades it has been used by the Indians, who, in a primitive fashion, adapted it to many useful purposes, such as the manufacture of cordage, rope, fishnets, lariats and yarns for weaving.

The growing of the plant beyond either a wild or experimental stage was extensively begun in 1905, when considerable interest was taken in the industry, with the result that, to date, over five thousand acres have been placed under cultivation in this vicinity, and additional large tracts of land are now being cleared preparatory to further increasing the present acreage.

It is a filamentous plant, producing a fine white fiber, strong, brilliant, soft and pliable in texture, and, although similar to other fiber plants found throughout Mexico, it is said to be far superior in quality and more prodigious in growth, yielding a good return in three years, while the others require from five to seven.

A light, sandy, well drained soil is most suitable, and after the initial clearing and ploughing, no preparation of the ground is neces-

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A light, sandy, well drained soil is most suitable, and after the initial clearing and ploughing, no preparation of the ground is necessary, as the plants are exceptionally hardy and vigorous and require little care when once properly started.

Planting can be done at any time of the year, but it is desirable to complete the operation either before or after the rainy season (April to October), when the weeds and wild grasses are most objectionable and seriously retard the development of the plants. It is also well to keep the fields perfectly free of all wild growth tending to cast any shade, and to carefully drain off any stagnant pools or other standing water, especially during the first year.

ZAPUBE FIBER

The young plants, or scions, as they are called, are set out in rows, usually about six feet apart each way, and averaging from one thousand to eleven hundred to the acre. Some planters prefer to place them from six and a half to seven feet apart, in double rows, between which they allow a passage of ten feet, in order to facilitate the handling of the product. But there is no fixed rule, however, except that the plant be given sufficient space to grow freely and attain its maturity, after which it requires little or no attention, is impermeable alike to heavy tropical rains or long continued droughts, and is practically immune from all forms of plant disease, pests, etc.

In most instances one year old plants are set out in the initial planting, but those five months of age will readily develop, bringing as good results, and are much less expensive.

Few plants possess the strength and tenacity of the zapupe, and, when full development is attained, it is most formidable and will not be molested by stock, cattle or game of any kind, thus rendering fencing, an expensive operation in this country, unnecessary.

As the leaves develop it will be found that they are quite similar to the henequen found in Yucatan; but while not so bulky, are much longer and numerous, and yield nearly double the amount of fiber to the plant.

Each year, after maturity, and during the life of the mother plant, six or seven sprouts or suckers spring from the root and these can be cut and set out between the rows, or removed to the propagating enclosure. Another interesting feature in the propagation of its species is the sprouting of a long stem, fifteen to twenty feet in height, which occurs toward the life-end of the plant and which blooms into a large cluster yielding from one thousand to twenty-five hundred complete scions, which drop off and may also be set in a propagating enclosure.

The leaves may be harvested at any time of the year, but are usually cut regularly every three months, care being taken to sever them clean to the stem, as it has been found that irregular cutting is frequently the cause of killing the plant. After gathering, the sharp thorn ends are cut off of the leaves, and they are placed in bundles of about fifty and carried to the cleaning shed, where they are made ready for shipment. The cleaning is a simple operation, consisting in running the leaves through a machine shredder, which will handle about twenty thousand leaves per hour, with the aid of three men. The fiber is then allowed to thoroughly dry in the sun, after which it is made ready for the market.

The uses to which zapupe may be adapted are almost unlimited. From its fiber is manufactured the finest cordage and rope, which will neither mold nor kink, and which is unaffected by climatic conditions of any kind.

By machinery each fiber is divided into one hundred parts or threads unfolding all its brilliancy and softness, and has been used to replace silk, but owing to the small amount produced in the past, has not been exported for the purpose, but the entire output consumed in Mexico.

Land suitable to the cultivation of zapupe varies in price from two to twenty dollars, gold, per acre, and at the present time is being largely dealt in by Americans who are immigrating to Mexico in great numbers.

The cost of clearing the ground preparatory to planting, averages from five to fifteen dollars per acre, and the young plants according to age vary in price from three to ten dollars per hundred.

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From fifty to fifty-five pounds of fiber are produced to each thousand leaves, thus averaging from two and a half to three tons of fiber to the acre, valued at about one hundred and forty dollars per ton. A profit of one hundred and fifty dollars per ton can be cleared annually on zapupe, and a ready market found for its sale, both in the United States and Mexico. Numerous samples have been submitted in this country and in Europe and have been pronounced most satisfactory, thus creating a great demand for the product that can not, at present, be supplied.

GATHERING PULQUE

CHAPTER XIV.

HENEQUEN FIBER IN YUCATAN

HENEQUEN is peculiar to Mexico and is one of the world's most valuable crops. It grows on barren land as well as richer soils and thousands of acres which are useless for other agricultural products will produce a rich revenue when planted in henequen. It requires little moisture, less cultivation, and a crop failure is unknown. When baled henequen fiber can be held indefinitely.

From 100 to 1200 plants are set out to the acre. Barren, rocky soil will produce about 666 pounds of fiber per year, while the richer will yield as high as 240 pounds. The price will average 10 cents, making the income per acre on henequen from $66 to $240 per acre, depending on the character of the soil.

CUTTING HENEQUEN

One of the most important of the world's fiber plants has for centuries grown wild on the stony hillsides of Yucatan. This is the Agave sisalensis, a near relation of the century plant and of the Agave Americano from which pulque, the national drink of Mexico, is obtained. Although often called sisal grass or sisal hemp, henequen is in reality

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A YOUNG HENEQUEN PLANTATION.

neither grass nor hemp and for nearly forty years very little of it has reached the commercial world from Sisal, formerly the port of export which gave to the product the name it still retains.

According to Mr. E. H. Thompson, who since 1885 has been American consul, first at Merida and later at Progreso, there are at least three varieties of the agave sisalensis growing wild in the forests of Yucatan and two varieties of the cultivated plant, the yaxci, or green fibre, and the segi or white fibre. Most of the sisal hemp of commerce belongs to the latter variety. Although a little henequen is raised in the adjoining state of Campeche, practically all of the world's supply comes from Yucatan, save for a relatively small quantity grown in Cuba, and the output of a few excellent plantations in the state of Tamaulipas.

Few of the great staples of the world's commerce are more hardy than henequen. It seems to thrive on soils where other crops would be impossible. In general, the best plants appear to grow on the thin, rocky, limestone soil widely found in Yucatan. The rich lands produce a plant weaker in tensile strength, while sandy soils do not appear to be favorable. According to the authority just quoted the plants thrive best in Yucatan in a zone following the coast, but distant about twelve miles from it and some seventy miles wide. No degree of tropical heat affects it, nor is it seriously damaged by droughts or excessive rains. Frosts would be fatal, but there are no frosts in Yucatan. Now and then a fire burning over the weeds and morning glories growing between the plants will completely destroy a field of henequen, but this danger can be avoided by cleaning the fields once or twice a year.

The henequen plant is propagated chiefly by means of the hijos or scions that sprout out shortly after the leaves have been cut. These are rooted out, left to dry awhile, and are planted just before the rainy season, the best practice being to set the plants 1 1-2 yards from one another in rows four yards apart or about 1,100 plants to the acre. In about five years the plants are ready for first crop of leaves to be cut and will then yield two crops per year for a period of ten or fifteen years, the only attention necessary being an occasional cleaning of the fields from undergrowth. Very damp seasons, however, retard the growth, occasionally reducing the number of crops or cuttings to three during two years.

Harvesting is a very simple operation, and unlike most of the world's crops can be timed very largely to suit the convenience of the planter. At about the end of the fifth year the lower leaves on the stalk decline from the perpendicular to a horizontal position. This is a sign that the fibre is at its maximum tensile strength. In can, however, be left in the field for quite a while longer without serious injury or deterioration if conditions in the labor market, or low prices, render such a course advisable. When the time arrives for a field to be cut it is thronged with Indian laborers, each provided with a carva or machete with a curved or hooked end. With this instrument the laborer cuts the thick leaves as close to the stalk as possible, trims the side and end thorns, and cuts off the thorny tip. The leaves are then bound up into

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From a very early period the natives of Yucatan have employed various primitive implements for scraping the pulp of the henequen leaf from the fibre imbedded within it. In fact there are ample evidences that henequen fibre was well known and in extensive use in prehistoric ages when the wonderful temples, remains of which are still found in many parts of Yucatan were built. Experts consider that the fibre produced by the ancient hand implements still in use among the natives of Yucatan is superior to that cleaned by machinery, and Mr. Thompson states that the makers of the finest Yucatan hammocks (those worth their weight in silver) will not employ a fibre produced by any other method. The principle fibre cleaning machines, however, and those through which the great bulk of the henequen of commerce is passed, are the heavy power driven cleaners. These are of five or six types, some being made in the United States and some in Europe. The machine is known as the "Vencedora" and forms part of a typical plant consisting of boiler, engine, cleaner, elevator, etc., and costing on an average about $5,000 complete, although on some estates the machinery installed is valued at $100,000 or more. The henequen goes into the cleaner as it arrives from the fields. It then comes out at the left in white, hairy bunches of clean fibre.

DRYING HEMP.

The two most important native hand implements that have been used in Yucatan for separating fibre from the pulp of the henequen leaf are the pacché and the tonkas. In the former the leaf is attached by a peg to a flat piece of wood and a sharp-edged wood scraper, held diagonally, is pushed from the fixed to the free end of the leaf and away from the operator. The leaf is then turned around and the other side scraped in the same manner. In the tonkas the leaf is drawn toward the operator between a somewhat curved wooden surface and a similarly curved sharp-edged wooden scraper.

After the operation of cleaning, the fibre is spread on wire beds about one yard above the ground where it is thoroughly dried. It is then taken to the press room to be made up into bales of approximately 400 pounds each, when it is ready for shipment. Practically all of the fibre raised in Yucatan is sent to Progreso where there are warehouses capable of storing more than half of the annual crop of the state, thus enabling the planter to still further delay his export shipment if market conditions are unfavorable.

Many of the henequen plantations are very large, comprising hundreds or even thousands of acres in total area. By no means all of this, however, is planted to the profitable agave. Usually about 500 acres are planted to henequen, the exact amount depending upon the number of laborers available on each plantation, as well as the energy and enterprise of its owner. The number of planters in Yucatan is surprisingly small, not greatly exceeding 400, while the total area planted for sisal hemp at the present time is about 100,000 acres. The henequeros or henequen planters, are as a rule very wealthy, spending with their families a considerable part of each year in Paris or other Europan capitals. The laborers engaged in this industry, who are for the most part native Yucatan Indians, number about 90,000. Wages are usually based on the quantity of leaves cut, the planters paying 3 reals (37 cents) for the first thousand and 4 reals for the second thousand, the increased rate being a stimulus to encourage the laborer to finish two thousand as his day's work. The laborers buy all of their simple requirements from the plantation stores and are invariably in debt, as is customary in Mexico, and thus bound to the plantation for life. Indian corn, imported chiefly from the United States, constitutes the principal food of these laborers, with occasionally native black beans, meat being seldom eaten. The peons are a happy, careless, contented lot, and form an excellent, though inadequate labor supply. Some Chinese labor is employed.

Although it is only two or three decades since the raising and exportation of henequen in Yucatan became an industry of world-wide importance, it has during that period made the state one of the richest in Mexico, and the exportations for many years past have steadily averaged more than $1,000,000 U. S. currency per month.

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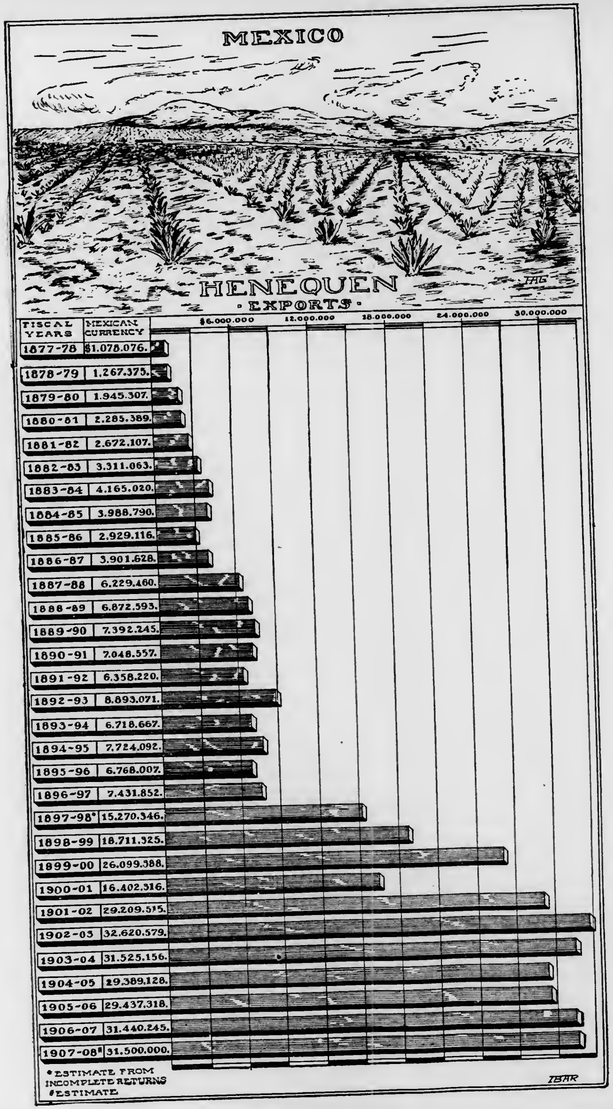


CHAPTER XV

TOBACCO CULTURE PROFITABLE

MEXICAN tobacco planters are among the richest in the world. Conditions are favorable for the growth of the weed and the return per acre is very large. Figures extending over many years show an average annual yield of about 540 pounds of high grade tobacco per acre. The price was about 35 cents, making the income per acre, about $189.00.

The fame of Mexico cigars and tobacco, both of which are made from Mexico tobacco exclusively, have become so justly popular with users of tobacco all over the world that at the present time practically every leaf of tobacco raised in Mexico is manufactured at home and the demand is so constantly increasing that thousands of more acres could yet be planted and there would always be a home market for the product at high prices.

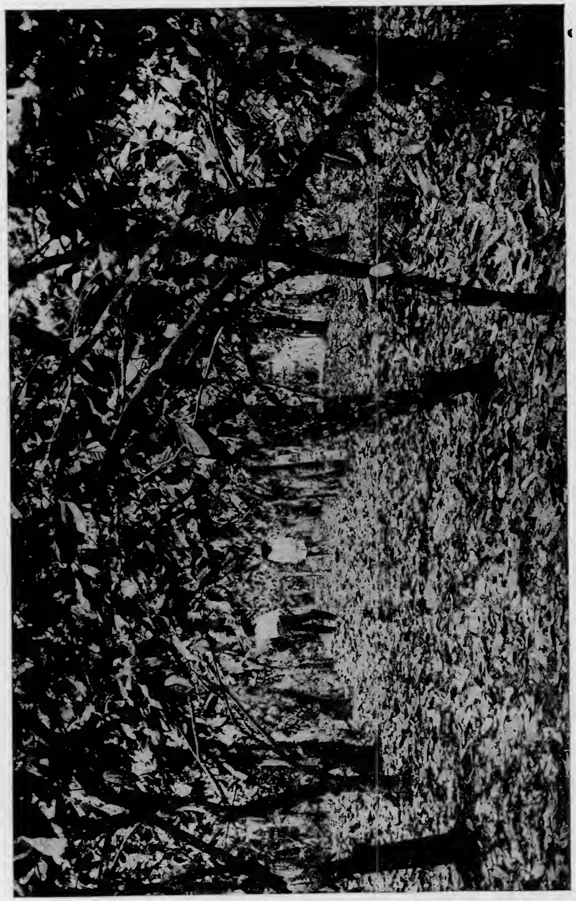
In fact, of all the crops with which Americans are familiar, there is probably not one which offers such opportunities for profit as the raising of tobacco. The soil and climate are ideal, the pests are few and the cultivation is easy. The yield is large and good land on which to produce tobacco can be had at very reasonable figures. Owing to the wide range both as to altitude, temperature and soil in which tobacco will grow, a man coming to Mexico to raise this crop could almost select his own location for the establishment of a farm.

At present Mexico is fifth among the countries of the world in the production of tobacco and in the manufacture of cigarettes and cigars, probably ranks about third. There is scarcely a city or even a town for that matter, in Mexico, where cigars and cigarettes are not manufactured and in Mexico City, Vera Cruz and other large cities there are some of the largest factories in the world.

Many tobacco users like the Mexican weed so much that they annually order their supply from Mexico.

There are now a number of foreigners engaged in raising and manufacturing tobacco in Mexico and they are meeting with universal success where they come equipped in the first place with the same experience which would make the business a success in any other country. In fact in Mexico there are less risks and some succeed where they would fail under more adverse circumstances.

Tobacco grows from 2 to 8 feet in height, and has ovate, oblong or lanceolate leaves, alternately attached to the stalk spirally; these leaves measure from 12 to 42 inches in length and 8 to 20 inches in width. The flowers are rose-colored or white.



FOUR YEAR OLD CHOCOLATE GROVE

CHAPTER XVI.

YIELD AND PROFIT OF CACAO

Trees to the acre, 400; annual yield per acre 4 pounds; total yield per acre, 1600 pounds; average price per pound, 25 cents; annual yield per acre, $400.

In speaking of Cacao culture in Mexico, United States Consul Donalson says:

"The growing of cacao is one of the most lucrative industries in the Tropics. The trees are planted four yards apart, or about 400 to the acre. Calculate an output of four pounds to the tree at 25c (gold) per pound, they would give an annual return of $400.00 (gold). The packing and preparing for market is much easier than coffee, as cacao grows in large pods, containing from fifteen to twenty-five beans each, on trees ten to twelve feet high. The trees grow very luxuriantly along the coast and river valleys, and at levels up to 2,000 feet elevation," but produce best at an elevation of from 300 to 700 feet above sea level.

Chocolate, the finished product of the cacao tree, is fast becoming one of the important crops of Mexico and has been grown successfully in the tropical portions of the Republic since history was written. In fact the word chocolate seems to have been derived from the word "chocolatl" of the Aztec language. In the language of the aboriginal Mexicans it meant water, that is a drink, from choco, which became under the Spanish tongue cacao. The Aztec name shows that the plant is distinctly American. It is indigenous to Mexico, Central America and in certain areas of South America. It grows to no better advantage in any part of the world than in Mexico and those who have turned their attention to raising it commercially have found great profits to result.

So fond were the ancient Aztecs of the drink that the Emperor Montezuma had fifty jars of chocolate prepared for his own table and 2000 more for the use of his household.

Its use among the people was so extensive that bags of cacao containing a certain number of beans were current as money. The Spaniards carried a taste for the drink to Europe and now it is popular in every country in the world.

Cacao is essentially a tropical cultivation, and is known in countries situated both north and south of the line. The extreme range of latitude is from 20° north to 20° south. Not only is the cultivation of cacao limited to these few degrees within the Tropics, but it is usually a success only in those areas in which the altitude is very insignificant; an elevation of between 200 meters and 800 meters (650 to 2,600 feet) marks the limits of the successful cacao platations in this equatorial belt.

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From one country to another varying degrees of temperature, moisture and rainfall—that is, of climate—may be noted, but in all cases cacao requires a moist atmosphere, a temperature between 70° and 90° F., a firm, deep soil, and shade. Climate must be carefully studied before a successful plantation can be expected. Two other conditions are equally as important as climate; these are drainage and shade. Whether the land should be flat or on a hillside is a question for the planter and agriculturist, but in any event it must have drainage, because the roots and the trunk will not stand more than a limited amount of water. Shade of some kind is acknowledged by practically all experienced planters to be necessary for the cacao tree. It is not a hardy plant, capable of fighting against odds in a tropical forest; wherever it has been found in its wild state, it has been under the protection of a taller tree that kept off both the fierce rays of the sun and the destroying blasts of the hurricane. These natural safeguards must, therefore, be preserved on a plantation. The banana has its place, as has also the rubber tree, and it is a well known fact that cacao grows excellently on ground which has previously been occupied by rubber trees.

The distance which should separate the cacao trees to get the best results when they arrive at full bearing maturity is thoroughly settled. Depending, of course, upon local conditions, trees should be planted at from 12 to 24 feet apart, which allows about 300 to 150 trees to the acre.

The cacao tree does not produce marketable fruit for several years after planting, but when once the pods can be gathered—and under careful cultivation a small crop may be expected at the end of the fourth year—the yield is a progressively increasing one until full maturity at the tenth year is reached, after which the fruit is considered the finest, and the tree may be kept in steady bearing for fully a generation.

When this stage is reached the agricultural problem gives place to the commercial one.

The commercial problem involves the best method of treating the cacao bean so that it will bring the highest price and produce the best chocolate and the most nutritious cocoa for the palates of the consuming world. The fruit of the tree, in which the seeds lie buried, is a melon or cucumber shaped "pod," 7 to 10 inches long and 3 to 4 1-2 inches thick. The rind is hard and tasteless, varying in color from yellow to red and purple, and marked by about ten longitudinal ridges, with deep grooves between them. The interior is divided into cells, each containing a row of seeds embedded in a soft, pinkish, acid pulp which can be used as food. These beans are the size of a thick, sweet almond, and are in this state the cacao beans or the raw cacao of commerce.

CHAPTER XVII.

YIELD AND PROFITS OF COFFEE

MEXICAN coffee trees begin to bear at three years of age, when the yield is about 300 pounds to the acre. At six years the tree produces 600 pounds per acre, and will continue that average yield for many years. The profit per acre depends on the price but even at 12 cents a pound the average income per acre is $72. Mexican coffee is always in demand in the markets of the world and commands the highest price of any grade except the genuine Mocha and Java. Mexico is now second to Brazil as a source of supply.

PICKING COFFEE.

In quality of flavor and aroma, in the quantity produced to the acre, in the healthfulness of the trees and the cost of cultivation Mexico ranks well to the front among the coffee producing countries of the world. The coffee of Uruapan and other sections is famous the world over. Coffee can be grown in Mexico in almost all of the tropical portions of the country and in Vera Cruz, and other

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tropical states there are already large plantations which have for many years been returning dividends to the promoters. As, in everything else, the character of the soil, the climate, the nearness to transportation must be considered by the person who is to raise coffee in Mexico, but with these questions intelligently settled there is no reason why a coffee plantation in Mexico should not be a highly profitable undertaking, and in fact many are already making it so.

Coffee has been known to history for many years and is widely used in all portions of the world. The demand can be said to be as unlimited as the demand for wheat and corn, the acreage suitable for the cultivation of the crops considered.

COFFEE TREE AND BERRIES.

The coffee tree, with its dark-red berries contrasted with the green foliage, is a beautiful growth. When in its natural state it often reaches a height of 14 or 18 feet, but under cultivation is not permitted to grow above 6 or 8 feet high. Its roots are thin, but numerous, and reach deep into the earth, a central root reaching straight down to a depth proportionate to the height of the tree.

If left to grow in its natural state, a coffee plant may grow into a shrub 14 to 18 feet high, having then a long and slender trunk without branches on the lower part. The plant has thin and numerous roots, which grow deep in the earth, having one central root going

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Healthy coffee trees produce, in the spring, in the axilla of each leaf, from twelve to sixteen buds, which soon bloom and have an exquisite perfume. Dry weather is better for the plants during the first days, but when the buds are becoming consistent the water washes the petals and discloses numerous pistils or germs of fruits on which all depends.

Experience teaches that when the pistils look fresh and have whitish tips, it may be expected that the crop will be approximately the same as the number of flowers, but when a black spot is noticed the planter may be sure that he has lost his crop. This happens generally when the plan is not sufficiently strong or is due to an inopportune rainfall.

It is when the leaves fall that there issue from the small stems groups of seeds at first yellow and coarse to the touch. When they ripen they begin to redden until they become the coffee berries. The bean in its natural state is convex on the one side and flat on the other. There are two seeds in the ripe berry, side by side, each one covered by a delicate silver-covered skin; then comes a cartilaginous membrane of rough consistence, and afterwards the pulp, which is mucilaginous, saccharine, and sometimes agglutinated, the outer part being covered by the outer skin.

The coffee bean is prepared by separating it from the pulp which surrounds it by means of water and fermentation. The hard shell is removed by mechanical processes. Thus is produced the coffee bean which is sold in the market.

The geographical distribution of coffee lies within a sub-tropical and tropical zone comprised between 25 degrees north and 25 degrees south of the equator, and between longitude 160 degrees west and longitude 150 degrees east of Greenwich. The extreme northern and southern limits of this zone are thus about 3,500 miles apart, and the distance between the farthest western and eastern limits, over 21,000 miles. Coffee grows, either in its wild or cultivated state, in Mexico, Central America, the West Indies, northern South America, Brazil, northern Africa, Arabia, various portions of the west and east coasts of Africa, the Hawiian Islands, British and Dutch India, and the Philippines.

The successful cultivation of the coffee bush requires an expert knowledge which can be gained only by experience and by experiment. The plant flourishes best in well-watered and drained regions, in a hot, moist climate, at considerable elevation, in a rich soil. Other conditions being favorable, it can withstand occasional light frosts. The rainfall should be 75 to 150 inches per annum, well distributed over all the seasons. Irrigation, when required, as in certain portions of Arabia and Mexico, must be intermittent, so as to avoid a water-soaked soil. The soil must be porous, as an impervious stratum within reach of the taproot (which is 30 inches long) is fatal, for no sooner does the taproot reach it than the tree falls off and dies.

The question of shade is a highly important factor in establishing a coffee plantation, more shade for the young coffee plants being required in hot lowlands near the coast than in sheltered elevated regions between 2,000 and 3,000 feet above sea level. When the elevation is as high as 5,000 feet, as in certain parts of Mexico, Central America, Venezuela, and Brazil, the plants require artificial shelter against cold winds from the north.

The young coffee plants are obtained in three ways: (1) By using the seedlings that grow up spontaneously, (2) by sowing the seeds in nurseries and afterwards transplanting, (3) by sowing them in the places they are to occupy finally.

The dressing and preparation of the coffee beans for the world's markets require special expertness and long experience. The berries should not be gathered until they have assumed a dark red color, verging on brown. Before it can be sold, the coffee has to be freed from the various envelopes that surround the two beans. This is done in two ways—the dry and the wet. The former is the old way, used in Arabia and America, where the planters are too poor to use improved machinery. It involves a complicated process of exposing the berries in layers, five or six inches deep, to the sun's rays, for about three weeks, after which the husks can be removed from the beans in a mill. The dry is really the best for producing finely flavored coffee, but is inapplicable when applied to large quantities in tropical countries.

The wet way requires expensive machinery, composed of vats filled with water, and a variety of apparatus for removing the lighter and worthless berries, loosening the pulp from the serviceable ones, cleaning the beans, and drying them thoroughly in the sun. Roasting the beans is delayed as long as possible, as unroasted coffee is said to improve with age. The process of roasting is a delicate and difficult operation, as thirty seconds too much or too little may mean a spoiled roast. To preserve their aroma, roasted coffee beans should be very carefully packed.

A FINE SPECIMEN OF RUBBER.

CHAPTER XVIII.

RUBBER AND ITS RELATIONS

MEXICO is fast forging to the front as a rubber producing country, the supply coming from wild trees, from well cultivated and magnificently equipped plantations and from millions of acres of desert land covered with the Guayule shrub.

Mexico now has between 50,000 and 100,000 acres planted in rubber trees and nearly all the plantations, where properly managed and established for raising rubber and not for floating stock, are producing a satisfactory income on the investments made.

It is estimated that 1,500,000 cultivated trees have reached the toppable age. In 1905 only 20,000 pounds of plantation rubber was shipped from Mexico. In 1906 the shipments increased to 50,000 pounds. In 1907 the shipments were 100,000 pounds and in 1908, 150,000 pounds. In 1909 the shipment will probably reach up to 175,000 pounds. When it is taken into consideration Ceylon last year shipped only about 250,000 pounds of rubber it can be readily seen how rapidly Mexico is coming to the front as a rubber country. These estimates do not include Guayule.

Guayule, a shrub discovered a few years ago to contain rubber, has become an important factor in the production of rubber. The shrub contains rubber in its branches, but this rubber is pure rubber and can be used for every purpose to which the latex of the Hevea is applied. Guayule therefore contradicts the statement made that no rubber could be produced outside the tropic zone. Guayule is a native of Mexico, but its habitat stretches also well into Texas. The shrub must be destroyed before the juice is extracted, and coagulation must be conducted by a different method, but in the end the outcome is rubber. The business of gathering the plant has become quite successful, and it is probable that efforts to cultivate it will turn out likewise.

PLANTING.

Planting should be done only upon virgin forest land and selected large seeds from trees known to be good producers should be used exclusively. In sections subject to northers, windbreaks should be provided in all exposed locations. The soil must be well drained and deep and not too clayey. A nursery should be provided, but usually planting can be done at the stake in the field. Some planters here plant six by six feet but the majority prefer about seven by fifteen with half a dozen seeds in each hill. Thinning out is done later to leave only the most promising plants to grow. The forest is cut

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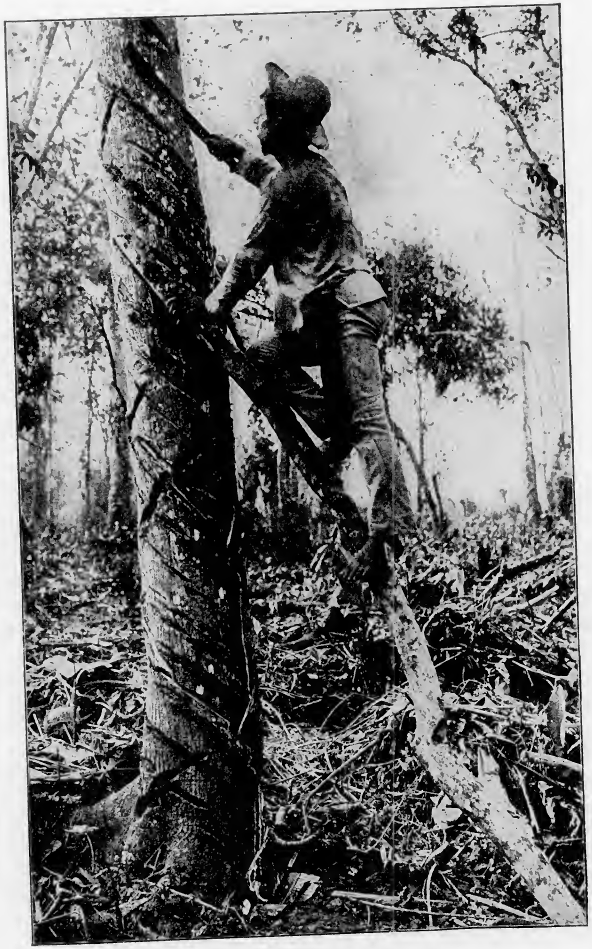
RUBBER TAPPER IN CHIAPAS.

down in the winter and the fallen timber burned over in the spring, which leaves a field with few seeds or roots still living to compete with the new rubber. This means that cleaning will be a small bill the first year and by the second season the rubber should be higher than most of the small bushes weeds and grass. It is then necessary only to keep the tops of the rubber trees in the sun and leave trunks and roots in the shelter of the other growths surrounding them. This plan of cultivation brings trees to production at six years for about what is used to cost in cultivation the first year alone.

THE PROPOSITION IN CASH.

Twenty-five to fifty dollars per acre plants and cares for the rubber till it produces: and for general expenses, administration, buildings, land, promotion, etc., add fifty to one hundred per cent to these figures. I know of no old rubber now in Mexico that has been produced for this cost, but millions of younger trees now growing will cost less than this estimate. If we figure on only two tappings per year from six-year trees and an ounce per tree each tapping and mature to that age 400 trees to the acre, we have fifty pounds of rubber per acre, the first tapping year. At present tapping, coagulating etc., cost us from fifteen to twenty cents gold per pound, but those figures will be lowered with experience; we may reasonably expect to get one dollar for our rubber for some years yet and seventy-five cents for an indefinite time into the future. This shows on an investment of $50 to $100 an acre a net profit the sixth year of $30 to $40. From that year on the production of rubber increases twenty-five per cent per annum for each cut made on the trees. But if we learn as much more in the next five years as we have in the past five, our profits will be double present estimates. At any rate we may feel confident that our growing knowledge will keep pace with any adverse tendencies in rubber prices, so that present estimates of profit will not prove excessive. These profits are not as high as those shown on paper in some other propositions but there is an element of certainty in rubber and that is augmented each year as we increase our practical knowledge of the business. The time will soon arrive when plenty of capital will be eager to enter rubber production at a profit only slightly above bank rates on interest, and then sound plantation securities will command a handsome premium as compared with their cost. There are few articles in the world market as staple as rubber whose prices are not held up by any combination, yet which continue to command far more than their cost to produce.



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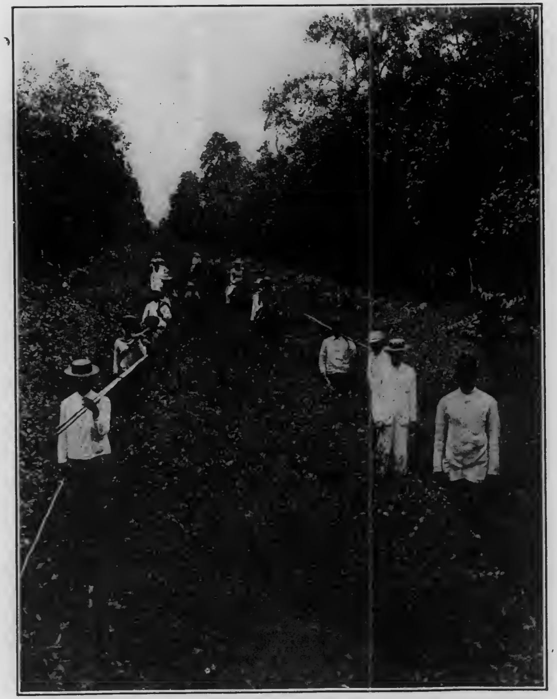

CHOCOLATE GATHERERS RETURNING FROM WORK

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